

Kindly See  
Admission Requirements  
Pages 38 to 40

# HARVARD SCHOOL OF PUBLIC HEALTH



Courses of Instruction

1957-1958

OFFICIAL REGISTER OF  
HARVARD UNIVERSITY

Volume LIV

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These publications include the report of the president; the general catalogue issue; the announcements of the College and the several professional schools of the University; the courses of instruction; the pamphlets of the several departments; and the like.





# THE HARVARD SCHOOL OF PUBLIC HEALTH

1957-58



*55 Shattuck Street  
Boston, Massachusetts*

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# CONTENTS

SECTION I — INTRODUCTORY INFORMATION . . . . .	5
PRESIDENT AND FELLOWS OF HARVARD COLLEGE . . . . .	7
THE BOARD OF OVERSEERS . . . . .	7
ADMINISTRATIVE OFFICERS . . . . .	9
ADMINISTRATIVE BOARD . . . . .	9
FACULTY OF PUBLIC HEALTH . . . . .	10
VISITING COMMITTEE OF THE BOARD OF OVERSEERS . . . . .	14
INTRODUCTION . . . . .	17
FACILITIES . . . . .	18
SECTION II — ADMISSION REQUIREMENTS, COURSES OF STUDY AND DEGREES . . . . .	23
Procedure in Regard to Application for Admission . . . . .	25
Master of Public Health . . . . .	27
Doctor of Public Health . . . . .	28
Master of Science in Hygiene . . . . .	29
Doctor of Science in Hygiene . . . . .	30
Master of Industrial Health . . . . .	32
Special Students . . . . .	33
Two-months' Program in Industrial Health . . . . .	33
Degrees in Engineering . . . . .	34
Program for Teachers of Preventive Medicine . . . . .	34
Program in Aviation Medicine . . . . .	35
Program in Public Health Education . . . . .	36
Requirements for Admission, 1958-59 . . . . .	38
SECTION III — CONTENT OF COURSES . . . . .	41
Interdepartmental and Divisional Courses . . . . .	43
Biostatistics . . . . .	44
Epidemiology . . . . .	47
Industrial Hygiene . . . . .	52

Maternal and Child Health . . . . .	56
Microbiology . . . . .	64
Nutrition . . . . .	68
Physiology . . . . .	72
Public Health Practice . . . . .	74
Sanitary Engineering . . . . .	84
Tropical Public Health . . . . .	86
SECTION IV — GENERAL INFORMATION . . . . .	89
Registration . . . . .	91
Foreign Students . . . . .	91
Veterans . . . . .	91
Fees and Expenses . . . . .	92
Bond Requirement . . . . .	94
Student Health Service . . . . .	94
Housing . . . . .	95
Employment . . . . .	96
Scholarships and Fellowships . . . . .	96
STUDENTS 1956-57 . . . . .	98
DEGREES CONFERRED IN JUNE, 1956 and MARCH, 1957 . . . . .	102
SCHEDULE OF COURSES OFFERED IN 1957-58 . . . . .	106
CALENDAR FOR THE ACADEMIC YEAR 1957-58 . . . . .	<i>Inside Back Cover</i>

Section I

Introductory Information



PRESIDENT AND FELLOWS OF  
HARVARD COLLEGE

(This Board is commonly known as the Corporation)

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*Secretary to the Corporation*

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1958

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 DAVID ROCKEFELLER, S.B., PH.D.

# 1961

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*Assistant Dean:* JAMES LAVERRE WHITTENBERGER, S.B., M.D.

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*Foreign Students:* WILLIAM HATHAWAY FORBES, DR.PHIL., M.D.

*Assistant to the Dean:* ROGER BENHAM SPAULDING, A.B.

*Administrative Assistant to the Dean:* MARGARET GUSS BARNABY, A.B.

*Director, Health and Medical Care*

*Program for Students:* DONALD ASA TUCKER, M.D.

Office, Peter Bent Brigham Hospital, 721 Huntington Avenue,  
Boston.

*Bursar:* CHARLES CROSBY PYNE, S.B.

Office, Lehman Hall, Cambridge.

The Offices of Administration of the School of Public Health are  
located at 55 Shattuck Street, Boston.

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HARVARD UNIVERSITY

FACULTY OF PUBLIC HEALTH \*

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MELVILLE CONLEY WHIPPLE, A.M. (hon.), *Associate Professor of Sanitary Chemistry, Emeritus.*

PROFESSORS \*\*

JOHN CRAYTON SNYDER, A.B., M.D., *Microbiology (Dean).*

HUGH RODMAN LEAVELL, S.B., M.D., DR.P.H., *Public Health Practice (Assistant Dean).*

JAMES LAVERRE WHITTENBERGER, S.B., M.D., *Physiology. (Assistant Dean).*

PHILIP DRINKER, S.B., CHEM.E., S.D. (hon.), LL.D., A.M. (hon.), *Industrial Hygiene.*

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\* Arranged, with the exception of the Deans, in order of appointment to present rank.

\*\* For details of title, see listing under the Department.

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CONSTANTIN PRODROMOS YAGLOU, B.A., S.B., M.M.E., A.M. (hon.), *Industrial Hygiene.*

DONALD LESLIE AUGUSTINE, S.B., S.D., S.D. (hon.), A.M. (hon.), *Tropical Public Health.*

THOMAS HUCKLE WELLER, A.B., S.M., M.D., LL.D., *Tropical Public Health.*

HAROLD ALLEN THOMAS, JR., S.D., *Sanitary Engineering.*

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ROSS ARMSTRONG MCFARLAND, A.B., PH.D., S.D. (hon.), *Industrial Hygiene.*

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JOHANNES IPSEN, C.A., C.M., DR.MED., M.P.H., *Microbiology.*

THEODORE HUNT INGALLS, A.B., M.D., SC.D. (hon.), *Epidemiology.*

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ELIZABETH PRINCE RICE, A.B., S.M., *Maternal and Child Health.*

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WILLIAM MORRIS SCHMIDT, M.D., *Maternal and Child Health.*

## CLINICAL PROFESSOR

SAMUEL BROWN KIRKWOOD, A.B., M.D., *Maternal and Child Health.*

## ASSOCIATE CLINICAL PROFESSOR

ABRAHAM DANIEL RUBENSTEIN, A.B., M.D., M.P.H., *Epidemiology.*

## LECTURERS

HELEN LUCILE ROBERTS, A.B., M.D., M.P.H., *Public Health Practice.*

WILLIAM HATHAWAY FORBES, DR.PHIL., M.D., *Physiology.*

OZZIE GORDON SIMMONS, S.B., PH.D., *Public Health Practice.*

## ASSISTANT PROFESSORS

ALFRED LEO FRECHETTE, M.D., M.P.H., *Public Health Practice.*

THOMAS FEGER PUGH, M.D., M.P.H., *Epidemiology.*

MARGARET LIVINGSTON VARLEY, S.B., M.P.H., *Public Health Practice.*

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SAMUEL DENNIS BELL, JR., A.B., M.D., M.P.H., *Microbiology.*

PAULINE GEORGE STITT, M.D., M.P.H., *Maternal and Child Health.*

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CARL ERNEST TAYLOR, S.B., M.D., DR.P.H., *Epidemiology*.  
STEPHEN BOURNE ANDRUS, S.B., M.D., *Nutrition*.  
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JERMYN FRANCIS MCCAHAN, A.B., M.D., *Industrial Hygiene*.

## ASSOCIATES

- ERIK BERGLUND, A.B., M.D., *Physiology* (Absent 1957-58)  
FRANK RANDOLF PHILBROOK, S.B., M.D., M.P.H., *Epidemiology*.  
FRANK LUSK BABBOTT, JR., A.B., M.D., M.P.H., S.M. IN HYG.,  
*Epidemiology*.  
MARY LOUISE QUAIFFE BOLLIGER, A.B., S.M., PH.D., *Nutrition*.  
ISABELLE VALADIAN, M.D., M.P.H., *Maternal and Child Health*.

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The names of the members of the teaching and research staff are listed in their respective departments under Content of the Courses, pages 43-88.

THE COMMITTEE APPOINTED BY THE BOARD OF  
OVERSEERS TO VISIT THE SCHOOL OF  
PUBLIC HEALTH

1957-58

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HARVARD UNIVERSITY

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| HUNTINGTON WILLIAMS, M.D.        | Baltimore, Maryland        |
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| JOHN S. ZINSSER                  | Philadelphia, Pennsylvania |
| Vice-Chairman of the Board       |                            |
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## INTRODUCTION

The Harvard School of Public Health is one of the six privately endowed institutions in the United States which are primarily devoted to graduate education in public health. The School operates as an independent unit of Harvard University in close association with the Faculty of Arts and Sciences, the Graduate School of Education, the Medical School, the Dental School, and the various Harvard hospitals. This introduction indicates in a general way the opportunities the School affords those students who are seeking a career in one or more of the three principal areas of public health activities: teaching, research, and administration.

Public health evolved from the early combination of medical science and engineering for the control of environmental hazards. Public health has now grown to embrace various facets of the biological, physical and social sciences as the community aspects of health problems have become more complex. In its plans for the future, the Harvard School of Public Health is principally concerned with two general kinds of problems. In the first category are the problems which have emerged as certain areas of the world have become highly urbanized and technologically advanced. Foremost among these problems are mental illness, cancer and the degenerative diseases, accidents, and the hazards of ionizing radiations. Discovery of causes and factors which modify the course of illness and injury is necessary for the development of prevention and control. Research is also needed to achieve effective administrative technics for the provision of optimum health services for entire communities.

The other general category of problems in public health derives from the fact that more than half of the people in the world reside in areas afflicted by malnutrition and communicable disease. The programs which have been successful in the technologically advanced countries often cannot be used because of basic differences in culture, geography or economic factors.

In its approach to these problems the Harvard School of Public Health has as its objective the advancement of public health, both

## HARVARD UNIVERSITY

nationally and internationally. The School seeks to accomplish its objective through its activities in education and by its search for knowledge. The Faculty is equally committed to basic research in new fields and to the development of effective methods for the application of knowledge by communities or nations. The Faculty of the School and its alumni have the opportunity to play a role of major importance in the decades ahead as the profession of public health evolves in scope and content to meet the health problems of our rapidly changing societies.

The Faculty is currently undertaking a major revision of its courses of instruction. The primary intent of the new curriculum in the Harvard School of Public Health will be to attract individuals who have the potentiality for original contributions to public health. In the selection of applicants preference will be given by the Admissions Committee to students who are capable of undertaking a course of study leading to a doctoral degree in one of the departments or disciplines of the School.

## FACILITIES

Most departments of the School of Public Health are housed in two buildings in the same block: one at 55 Shattuck Street, the other at 1 Shattuck Street, Boston (15). The administrative offices are in the former building. Between the School's two buildings are the Harvard Medical and Dental Schools; the Children's Medical Center is next door, the Peter Bent Brigham Hospital is across the street and the Boston Lying-in Hospital and Vanderbilt Hall are a block away. The latter is a dormitory for medical students, with a dining hall which is available to the students in the School of Public Health.

The facilities of the hospitals and the Harvard Medical and Dental Schools are available to qualified students of this School, and are used in connection with the teaching of various subjects. In addition, students enrolled at the School may take courses in other departments of Harvard University. Students frequently enroll for work in the social sciences, public administration, business administration and

## SCHOOL OF PUBLIC HEALTH

medical sciences. Certain graduate courses at the Massachusetts Institute of Technology are also open to students of this School.

The Department of Sanitary Engineering of the School is also part of the Division of Engineering and Applied Physics of the Graduate School. The basic course for students of the School of Public Health is taught here, but students may also register for certain special and advanced courses in Sanitary Engineering given in Cambridge.

Of particular interest to students of this School is the close contact with various health agencies in Massachusetts and elsewhere. The divisions of the Massachusetts Department of Public Health not only furnish opportunities for observation and training in their fields, but their staffs enter into the teaching of courses at the School. Administrative methods at local levels may be studied at first hand in the health departments of the cities of Boston, Cambridge, Worcester and the Town of Brookline, the directors of which are also faculty members and take active part in teaching.

There are two special areas for study and training purposes closely linked to the School. The Whittier Street Health Center, a district health unit of the Boston City Health Department, is used not only for purposes of demonstration and training, but also as a field for research in problems of administration, of mental health, and of human ecology in general. The other special area includes the territory covered by the Nashoba Associated Boards of Health and the urban community of Leominster, some 30 miles from the School. It furnishes opportunities for the investigation of rural problems and administrative methods, supplementing those offered by Whittier Street.

The Institute of Laboratories of the Massachusetts Department of Public Health is engaged in a program of general interest, attracting visitors and students from various parts of the United States and from foreign countries. It not only performs a wide variety of standard bacteriological, immunological and chemical procedures, but is actively engaged in several research programs. Its Superintendent is a member of the School's faculty. This close contact with one of the country's outstanding laboratories provides unsur-

## HARVARD UNIVERSITY

passed opportunities for qualified students who wish to obtain intensive experience in many types of laboratory methods of particular pertinence to public health.

The clinical and laboratory facilities of the Lemuel Shattuck Hospital are available to students of the School. This new hospital was built by the Department of Public Health of the State of Massachusetts for the active treatment of patients with chronic diseases. Since the average duration of hospitalization is much longer than that in general hospitals, an opportunity is afforded to study chronic disease problems not encountered in general hospitals. The training program, consultant rounds and professional staff appointments are under the aegis of the Deans of Boston University, Harvard and Tufts University Medical Schools, as well as the Harvard School of Public Health. Research laboratories at the Shattuck Hospital are engaged in studies of arthritis, hematology, pulmonary function, radioisotopes, cancer therapy and chronic renal and hepatic diseases.

The location of the Harvard School of Public Health places it in one of the great medical and industrial centers of this country. Clinical subjects, medical care and hospital administration may be studied at first hand. The many large and small industrial organizations permit the observation and investigation of a wide range of problems of occupational health.

### Libraries

The joint Library of the School of Public Health and the Harvard Medical School is on the second floor of the Administration Building of the Medical School. It is open from 9 a.m. until 10 p.m. on week days, from 9 a.m. until 5 p.m. on Saturdays, and from 2 p.m. until 6 p.m. on Sundays. There are at present 115,600 volumes, 213,700 pamphlets, and 1,157 current periodicals on file in this library.

Students also have the privilege of using the College Library in Cambridge, as well as the various departmental libraries belonging to the University, in all of which there are over 4,000,000 volumes and pamphlets.

The Boston Public Library is open to students who are residents

## SCHOOL OF PUBLIC HEALTH

of Boston, and to students not residents of Boston who have filed a bond at the Bursar's office.

The Boston Medical Library, No. 8 The Fenway, contains about 224,477 bound volumes, 158,481 pamphlets, and 1,042 current periodicals on file. For those who desire to consult medical literature, this very valuable library is open on week days from 9 a.m. to 5 p.m., Saturdays 9 a.m. to 1 p.m., and on Mondays and Thursdays until 9 p.m., Oct. 1 through May 31.



## Section II

### Admission Requirements Courses of Study and Degrees



## ADMISSION REQUIREMENTS

### PROCEDURE IN REGARD TO APPLICATION FOR ADMISSION

Applicants for admission to the School must submit the following material for consideration by the Committee on Admissions and Degrees: (1) completed application form; (2) transcripts of academic record at college, graduate school and/or professional school; (3) names of two people, well acquainted with the applicant's previous work, from whom the School may request letters of reference.

Applicants whose native language is not English must include with the Application for Admission written certification by an official of a sponsoring agency, government or academic institution, that the applicant can speak, read, write and understand the English language competently. In order to profit from a program of graduate study, the applicant must have sufficient knowledge of English to enable him to understand lectures in English, to participate in seminar discussions and to write examinations. If, upon arrival at the School, a student's command of English is found to be inadequate, he may be required to take further instruction in English.

In addition to fulfilling the specific requirements for admission to the several degree programs, applicants must satisfy the Committee as to their scholastic ability and potentiality for profitable study at a graduate level. In all instances, the final judgment as to the admissibility of any applicant rests with the Committee on Admissions and Degrees.

Preference will be given to applicants under forty years of age; applicants over 45 years of age may be considered for admission only if they are exceptionally well qualified.

The School is unable to accept all who apply and are eligible for admission. Therefore, persons who wish to be considered for admission to the 1958-59 Class are advised to submit their applications by April 1, 1958.

Admission of a candidate for one academic year does not automatically admit him in a subsequent year; re-application must be

## HARVARD UNIVERSITY

considered on the candidate's own merits in the light of the particular circumstances which govern the decisions of the Committee on Admissions and Degrees.

All inquiries and communications regarding admission should be addressed to the Secretary, Committee on Admissions and Degrees, Harvard School of Public Health, 55 Shattuck Street, Boston 15, Massachusetts.

# COURSES OF STUDY AND DEGREES

## MASTER OF PUBLIC HEALTH

### Requirements for Admission for 1957-58

Applicants may be considered for admission as candidates for the Master of Public Health degree if they are

1. graduates of approved schools of medicine, dental medicine, veterinary medicine or nursing \* *or*
2. graduates in arts, sciences, or engineering with adequate training in the sciences basic to public health, who
  - a. have completed at least one academic year of acceptable graduate study in a public health field, and who
  - b. have had a period of acceptable experience in a responsible position in public health practice.

In exceptional circumstances the Administrative Board may admit unusually well qualified applicants in the second category who lack *a* or *b*.

Persons with these qualifications must also satisfy the Committee on Admissions and Degrees as to their scholastic abilities and potentiality for graduate study.

### Requirements for the Degree

One academic year must be spent in residence at the University. The student must complete satisfactorily the required and elective courses to a total of 40 credit units. All candidates for the degree are expected to take Biostatistics 1a,b, Epidemiology 1b, Public Health Practice 1a,b and Sanitary Engineering 1a, unless they can demonstrate equivalent preparation. In addition, they must elect at least three of the following six courses: Environmental Hygiene 1b, Public Health 1a (Human Community), Microbiology 1a,b, Tropical Public Health 1a,b, Maternal and Child Health 4c,d or 5c,d and

\* Graduates in nursing must (a) have obtained a college degree; (b) have completed their study in public health nursing or its equivalent in an approved University program; (c) have had public health nursing experience, some of which is on a supervisory level.

## HARVARD UNIVERSITY

Nutrition 4c or 6d. The schedule of courses is shown on pages 106-113.

Upon completion of all course requirements the student must pass a comprehensive examination. This examination will be given only at the end of a semester.

### DOCTOR OF PUBLIC HEALTH

For the degree of Doctor of Public Health the student must complete an approved program of independent and original investigation in a special field and must present the results of this research in an acceptable thesis.

#### Requirements for Admission

1. An applicant for admission to candidacy for this degree must be either (a) a graduate of an approved school of medicine, dental medicine or veterinary medicine, or (b) the holder of another doctoral degree in one of the basic sciences related to public health. In exceptional cases, an individual lacking a previous doctoral degree may be admitted if he has displayed outstanding ability in previous academic work and in practical public health experience.

2. The applicant must hold the degree of Master of Public Health or its equivalent from a recognized institution and must indicate ability to undertake original investigation in a special field.

#### Requirements for the Degree

1. The student is required to complete a minimum of two semesters of resident research. In exceptional cases the required work for the degree may be completed in this year, although generally, preparation of an acceptable thesis will require a longer period.

2. The candidate must possess a reading knowledge of at least one language, other than English, in which there exists a significant body of literature relevant to the candidate's field of study. The ability to read this language must be demonstrated before the candidate is permitted to take the qualifying examination.

3. After the applicant enters the School, an advisory committee is

## SCHOOL OF PUBLIC HEALTH

appointed to review his preparation in the chosen and related fields of study, to pass upon the plan of the proposed thesis, and to determine when the candidate is eligible to take the qualifying examination. This examination is oral, covers the basic public health sciences, and must be passed before the candidate is permitted to proceed with the thesis.

4. The advisory committee continues to supervise the student's research, including the preparation of his thesis.

5. When the advisory committee has approved the thesis, it should be typed in final form, and three unbound copies should be deposited in the Dean's office at least four weeks before the date on which the final examination is to be held. In some instances the thesis will be submitted to a reading committee, if requested by the advisory committee or the Committee on Admissions and Degrees. Members of the reading committee may be selected from any faculty of the University and will be appointed by the Dean.

6. Each copy of the thesis must be accompanied by a summary not exceeding 1200 words in length, which shall indicate clearly the purposes, methods, and results of the investigation.

7. After the thesis is accepted, the student is given an oral examination by the faculty. The examination is conducted by the Admissions and Degrees Committee and covers the thesis as well as those public health subjects to which the thesis is related. Ordinarily this must be accomplished within five years after the qualifying examination is passed.

### MASTER OF SCIENCE IN HYGIENE

(With Designation of the Field of Concentration)

This degree is granted on fulfillment of a program of advanced work in one of the basic disciplines of public health. The courses taken must form an integrated plan of study in one branch of knowledge and allied subjects.

#### Requirements for Admission for 1957-58

An applicant for this degree must have received an academic degree from an institution of recognized standing, and must also sat-

## HARVARD UNIVERSITY

isfy the Committee on Admissions and Degrees as to his potentiality for successful study at a graduate level within the School and the Department in which he chooses to specialize.

### Requirements for the Degree

1. Two academic years of graduate work must be completed, one of which must have been spent in residence. A student with an exceptional record of accomplishment may be able to complete the requirements in less than two academic years. Decision on this point may be made by the Administrative Board at any time after the student completes one semester of residence, upon the recommendations of the Committee on Admissions and Degrees and the department in which the student has his major interest.

2. The student must complete a program of at least 40 credit units. He is expected to take Biostatistics 1a,b and Epidemiology 1b, unless he can demonstrate equivalent preparation. All courses in the primary and related fields of interest must be passed with an honor grade. The schedule of courses is shown on pages 106-113.

3. Upon completion of all course requirements the student must pass a comprehensive examination. This examination will be given only at the end of a semester.

## DOCTOR OF SCIENCE IN HYGIENE

(With Designation of the Field of Concentration)

This degree is granted on successful completion of a program of independent and original research in one of the basic disciplines of public health.

### Requirements for Admission

Candidates for the degree of Doctor of Science in Hygiene must have completed work equivalent to that required for the degree of Master of Science in Hygiene and must indicate ability to undertake original investigation in a special field.

## Requirements for the Degree

1. The student is required to complete a minimum of two semesters of resident research. In exceptional cases the required work for the degree may be completed in this year, although generally, preparation of an acceptable thesis will require a longer period.

2. The candidate must possess a reading knowledge of at least two languages, other than English, in which there exists a significant body of literature relevant to the candidate's field of study. The ability to read this language must be demonstrated before the candidate is permitted to take the qualifying examination.

3. After the applicant enters the School, an advisory committee is appointed to review his preparation in the chosen and related fields of study, to pass upon the plan of the proposed thesis, and to determine when the candidate is eligible to take the qualifying examination. This examination is oral, covers the chosen and related fields of study as well as the course work represented by the Master of Science in Hygiene degree, and must be passed before the candidate is permitted to proceed with the thesis. Students who enroll in the School of Public Health with the intention of becoming doctoral candidates are expected to complete required courses and pass their qualifying examinations within three years, if not sooner, for full-time students, or four years for part-time students.

4. The advisory committee continues to supervise the student's research, including the preparation of his thesis.

5. When the advisory committee has approved the thesis, it should be typed in final form, and three unbound copies should be deposited in the Dean's office at least four weeks before the date on which the final examination is to be held. In some instances the thesis will be submitted to a reading committee, if requested by the advisory committee or the Committee on Admissions and Degrees. Members of the reading committee may be selected from any faculty of the University and will be appointed by the Dean.

6. Each copy of the thesis must be accompanied by a summary

## HARVARD UNIVERSITY

not exceeding 1200 words in length, which shall indicate clearly the purposes, methods, and results of the investigation.

7. After the thesis is accepted, the student is given an oral examination by the faculty. The examination is conducted by the Admissions and Degrees Committee and covers the thesis as well as those public health subjects to which the thesis is related. Ordinarily, this must be accomplished within five years after the qualifying examination is passed.

### MASTER OF INDUSTRIAL HEALTH

The course of training leading to the degree of Master of Industrial Health is designed to meet the increasing need for physicians qualified to plan, organize, and direct health programs for industry and labor.

#### Requirements for Admission

Candidates for this degree must be graduates of an acceptable school of medicine and must also satisfy the Committee on Admissions and Degrees as to their scholastic abilities and potentiality for profitable study at a graduate level. Students from the United States should have completed an internship of at least twelve months in a hospital approved by the American Medical Association. While preference will be given to physicians who have had previous experience in industrial practice, the course is open to all qualified physicians.

#### Requirements for the Degree

1. One academic year must be spent in residence at the University.
2. The student must complete 40 credit units satisfactorily. All candidates for the degree are expected to take the following courses unless they can demonstrate equivalent preparation:

##### *Industrial Medicine*

Basic Problems in Industrial Hygiene (I.H. 1c)

Industrial Medicine (I.H. 6c)

## SCHOOL OF PUBLIC HEALTH

Industrial Medical Clinics (I.H. 3a, b, c, d)

Human Problems of Adjustment in Industry (I.H. 5c)

### *Environmental Hygiene*

Environmental Hygiene (E.H. 1b)

Environmental Physiology (Physiol. 2c)

Principles of Sanitation (San. Eng. 1a)

Industrial Air Analysis (I.H. 2a, b)

Hygienic Aspects of Ventilation (I.H. 8d)

### *Public Health*

Principles of Epidemiology (Epid. 1b)

Principles of Biostatistics (Bio. 1a, b)

Organization of Medical Care (P.H.P. 2a, b)

In addition, the student may select from the general curriculum courses of interest to him, or do special work subject to approval of the Head of the Department of Industrial Hygiene.

3. Upon completion of all course requirements the student must pass a comprehensive examination. This examination will be given only at the end of a semester.

## SPECIAL STUDENTS

Subject to availability of space, the School may accept a few students, on a full time or a part time basis, who are not degree candidates, but who are interested in taking one or more courses in a special field. Procedures for the admission of such students are the same as for degree candidates. Special students who later wish to be admitted to degree candidacy will be considered on the same basis as other applicants for admission. Admission as a special student carries with it no commitment to accept the applicant as a degree candidate.

### **Two-month's Program in Industrial Health**

The Department of Industrial Hygiene offers an opportunity for a limited number of qualified industrial physicians and engineers to

## HARVARD UNIVERSITY

enroll as special students to take the courses in industrial hygiene, industrial medicine and related subjects. This is a full time program given during February and March and includes most of the courses in the Department of Industrial Hygiene which are described on pages 53-56. The tuition fee for this two-month's program is \$300.

### DEGREES IN ENGINEERING

Graduates of engineering colleges or scientific schools of recognized standing who are interested in the sanitary engineering or industrial hygiene aspects of public health may be admitted to the Division of Engineering and Applied Physics of the Graduate School of Arts and Sciences as candidates for the degree of Master of Science, Master of Engineering or Doctor of Philosophy. They may elect appropriate courses in the School of Public Health as a part of the program for these degrees.

For further information write to the Committee on Admissions, Graduate School of Arts and Sciences, Farlow House, Cambridge 38, Massachusetts.

### PROGRAM FOR TEACHERS OF PREVENTIVE MEDICINE

In medical schools throughout the world teaching in the fields of Preventive and Social Medicine has been developing rapidly. New departments are being set up in many schools and staff members are being drawn from almost every possible medical background. The growing demand for a training program specifically to prepare for teaching preventive medicine has led to the present plan which the Harvard School of Public Health is developing in close cooperation with the departments of preventive medicine of several medical schools.

The curriculum consists of a two-year program in which special emphasis will be given to tutorial work and practical experience. The details of the plan will be adapted to the needs of individual students. Teachers of preventive medicine should be competent in both clinical medicine and public health since their teaching

## SCHOOL OF PUBLIC HEALTH

should bridge the gap between these two fields. The first year will provide either public health or clinical training depending on the student's previous experience. Most candidates will come with an adequate clinical background and will concentrate their work in the regular courses at the School of Public Health. Students who have adequate training and experience in public health will have opportunities to improve their clinical background. Both groups of students will take a seminar in preventive medicine. A special course in educational methods will be given during the fourth quarter. During the summer participation in a research program will be arranged. In the second year emphasis will be placed on methods of teaching preventive medicine. In the departments of preventive medicine of the cooperating medical schools students will be given opportunities to teach under supervision. Completion of the program will qualify the students for an appropriate degree, in most cases, the Master of Public Health or Master of Science in Hygiene. In exceptional cases the previous academic experience of a student may qualify him to study for a Doctor of Public Health degree.

### PROGRAM IN AVIATION MEDICINE

In February of 1953 the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association authorized certification by the American Board of Preventive Medicine, Inc. of properly qualified specialists in aviation medicine. The Harvard School of Public Health has developed a program to meet the Board requirements of one year of graduate education in the basic sciences related to aviation medicine in a school of public health. This program has the approval of the Committee on Aviation Medical Training and Education of the Aero Medical Association. Those students wishing to obtain credit toward certification in the field of aviation medicine may enroll for the degree of Master of Public Health. The requirements for this degree are outlined on pages 27-28. A series of seminars will be given during the academic year to meet the special interests of those concentrating in the field of aviation medicine, not only for repre-

## HARVARD UNIVERSITY

sentatives of the military services but also for those who plan to enter the medical services of the aircraft manufacturing companies and civil airlines.

### PROGRAM IN PUBLIC HEALTH EDUCATION

This program is offered by the School of Public Health with the cooperation of the Department of Social Relations (Faculty of Arts and Sciences) and the School of Education. The program as outlined is flexible and may be modified to suit the needs of the student. Classwork is supplemented by three months of supervised field training following the second semester.

Candidates may study for the degree of Master of Public Health or Master of Science in Hygiene, depending upon the qualifications of the individual applicant. Work toward the degree of Doctor of Science in Hygiene is offered to exceptional students.

Health education is an area of public health in which there has been rapid development in recent years. Professional opportunities are numerous and varied and exist at local, state and national levels in both official and voluntary agencies.

The program of study includes the following courses:

### Public Health and Health Education (School of Public Health)

<i>Required Courses:</i>	<i>Credits</i>
Community Health Education	6
School Health Education	2
Group Dynamics	2
The Human Community	2.5
Environmental Hygiene	2.5
Principles of Public Health Practice	3
Public Health Administration	6
Including Health Education, Public Health Nursing, and Social Work in Health Agencies	
Principles of Biostatistics	4

## SCHOOL OF PUBLIC HEALTH

Principles of Epidemiology	2.5
Principles of Sanitation	2.5
Psychosocial Problems	1
	<hr/>
TOTAL	34

### *Electives:*

Courses in medical care, mental health, public health history, cancer control, nutrition and others, may be elected depending on individual interests and training.

### Social Relations and Education

(Faculty of Arts and Sciences; School of Education)

A selection of courses from the following, which presuppose some knowledge of the social sciences and education, will vary with the student's background and needs.

### *Social Relations:*

<i>Course</i>	<i>Credits</i>
Cognitive Process in Personality (Psych. 148)	5
Health and Illness in Cross-Cultural Perspective (S.R. 283)	5
Introduction to Anthropology (Anth. 1b).	5
Introduction to the Study of Small Groups (S.R. 148)	5
Opinion and Communication (S.R. 152)	5
Social Organization (S.R. 116)	5
Social Psychology (S.R. 117a)	5
Personality and the Social System (S.R. 175)	5

### *Education:*

<i>Course</i>	<i>Credits</i>
Introduction to Administrative Problems (C-17)	5
Introduction to Educational Psychology (B-2)	5
Curriculum and Methods (C-10)	5

## HARVARD UNIVERSITY

### Field Work

Arrangements will be made with approved official and voluntary agencies for three months of supervised field work in community health education.

### REQUIREMENTS FOR ADMISSION EFFECTIVE FOR THE YEAR 1958-59

During the past two years the School has undertaken to evaluate its role in graduate education in public health and to revise its educational program with the following objectives in mind: (1) To increase the number of doctoral candidates in the several disciplines of public health; (2) To expand and improve the opportunities for individual study and tutorial instruction; (3) To minimize the pedagogic difficulties inherent in combining candidates with widely different professional backgrounds in the same degree program.

As a first step in moving toward its new objectives, the Faculty voted in June, 1957, to adopt new standards of admission to candidacy for the Master of Public Health and the Master of Science in Hygiene degrees, effective for the year 1958-59. A revision of the courses of instruction in line with these new requirements will be undertaken during the year 1957-58.

### MASTER OF PUBLIC HEALTH DEGREE

1. Applicants may be considered for admission as candidates for the Master of Public Health degree if they are graduates of approved schools of medicine or if they have similarly thorough preparation in the biological sciences.

2. Persons with these qualifications must satisfy the Committee on Admissions and Degrees as to their scholastic abilities and potentiality for profitable study at a graduate level. In arriving at its decision, the Committee will give consideration to practical experience when relevant.

## SCHOOL OF PUBLIC HEALTH

### MASTER OF SCIENCE IN HYGIENE DEGREE

(With Designation of the Field of Concentration)

This degree is granted on fulfillment of a program of advanced work in one of the basic disciplines of public health. The courses taken must form an integrated plan of study in one branch of knowledge and allied subjects.

Applicants may be considered for admission as candidates for the Master of Science in Hygiene degree, on the basis of a one-year or a two-year program, if they meet the requirements in one of the categories listed below. They must also satisfy the Committee on Admissions and Degrees and the department within which they choose to specialize as to their potentiality for successful study at a graduate level within the School.

#### A. One-year Program

1. Applicants who are graduates of approved schools of medicine or who have similarly thorough preparation in the biological sciences.
2. Applicants in public health specialties (social workers, nurses, health educators, nutritionists) who have obtained a master's degree with honor grades in their special fields and have had at least two years' acceptable experience in a public health activity.
3. Applicants in industrial hygiene or public health engineering who have a bachelor's degree with honor grades in physics, chemistry and engineering and who have a master's degree or equivalent graduate work with honor grades.
4. Applicants who have a doctoral degree from an approved school in a discipline related to public health.

#### B. Two-year Program

1. Applicants with a bachelor's degree obtained with honors in the natural sciences who wish to specialize in one of the laboratory sciences or statistics.

## HARVARD UNIVERSITY

2. Applicants with a bachelor's degree obtained with honors and with an adequate background in the natural sciences who wish to specialize in health education.

Under certain circumstances, a year of graduate work in another institution may be accepted as the first year of this program.

Section III  
Content of Courses



## CONTENT OF COURSES

### INTERDEPARTMENTAL AND DIVISIONAL COURSES

#### Public Health Forums

Lectures. *Dates to be announced.* Members of the Faculty, and guest lecturers.

In order to afford an opportunity for the entire student body to meet with the Faculty and distinguished guest lecturers, forums are held at various times during the academic year. They are designed to bring the interests of several departments to bear on topics of general importance.

#### Public Health 1a. The Human Community

Lectures and seminars. *Mondays and Fridays, 10-12, Thursdays, 12-1, first period.* Dr. REED, Dr. PAUL and associates.

Credit 2.5 units.

Comprehension of health problems and implementation of health programs depend upon understanding the forms and forces active in community life. This course of instruction deals with demography, social and cultural characteristics of human populations, the organization and behavior of human communities, and their relationship to the environment. The objective of the course is to provide a knowledge of human populations, interpersonal relationships, and social organization in preparation for the study of public health.

#### Public Health 3c. History and Philosophy of Public Health

Seminars. *Tuesdays, 3:30-5:30, third period.* Dr. FRECHETTE.

Credit 1 unit.

The growth, development and philosophy of the modern health movement, particularly in the Anglo-Saxon countries is discussed. Cultural, social and economic forces that have influenced the movement are studied in relation to the evolution of health sciences and services.

#### Public Health 40c, d. Research Methods in Community Health

Lectures and discussions. *Wednesdays and Fridays, 12-2, third and fourth periods.* Dr. REED, Dr. LEVINE and associates.

Credit 4 units.

This elective course, offered by members of the Biostatistics and Public Health Practice Departments, is intended primarily for doctoral candidates and other advanced students who require specialized preparation to conduct or

## HARVARD UNIVERSITY

administer scientific research on social and community aspects of health, health behavior and health organization. By means of lectures, discussions of current research projects, and presentations of students' own research plans, instruction will cover a range of methods and techniques including research design, survey methods, case and longitudinal studies, as well as relevant statistical techniques, methods of constructing and administering interviews, and other methods of data collection and analysis. Admission is by permission of the instructors. No more than ten students will be accepted.

### **Environmental Hygiene 1b.**

Lectures. *Tuesdays, 10-11, Thursdays and Saturdays, 10-12, second period.* Professor Drinker, Dr. Whittenberger and associates.

Credit 2.5 units.

This course is presented by members of the Industrial Hygiene and Physiology Departments. Physiologic responses evoked by the physical and chemical attributes of man's environment will be described and the limits of such responses emphasized. Methods for assessing environmental stresses and for modifying the environment to fit man's needs will be presented. Topics covered will include: temperature, humidity, barometric pressure, ionizing and non-ionizing radiation, air pollution, toxicology, illumination, and noise.

### **Environmental Hygiene 2a, b. Radiological Health**

Lectures, demonstrations, laboratories and field trips. Three hours a week, time to be arranged, during the first and second periods. Staff of the Departments of Industrial Hygiene and Physiology.

Credit 2 units.

Essentials of atomic physics and radiation biology are presented as an introduction to the evaluation of health hazards from ionizing radiation.

## DEPARTMENT OF BIOSTATISTICS

HUGO MUENCH, A.B., M.D., DR.P.H., A.M. (hon.), *Professor of Biostatistics and Head of the Department*

JANE WORCESTER, A.B., DR.P.H., *Associate Professor of Biostatistics*

ROBERT B. REED, PH.D., *Associate Professor of Biostatistics*

ANTHONY F. BARTHOLOMAY, A.M., S.D. IN HYG., *Assistant Professor of Mathematical Biology*

PAUL M. DENSEN, A.B., S.D., *Visiting Lecturer on Biostatistics*

MARGARET E. DROLETTE, A.B., M.P.H., *Instructor in Biostatistics*

MARIAN G. MALOON, A.B., ED.M., *Instructor in Biostatistics*

ELIZABETH G. FLANAGAN, S.B., *Research Associate in Biostatistics*

## SCHOOL OF PUBLIC HEALTH

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MINDEL C. SHEPS, M.D., M.P.H., *Assistant Professor of Preventive Medicine*

Graduates of the School, whatever their chosen careers, will find themselves in positions where they must initiate programs and evaluate the results of the programs. Whether their work lies in administration or in research, students must be able to pose and to answer questions and to read critically the literature in their fields. Knowledge of the scientific method is essential to these purposes.

Since most students come to the School with no background in statistical technics and their application, the first course has been organized to present essential methodology, with the realization that few students will become workers primarily in the field of statistics. Relatively little emphasis is laid on technics per se, and these have been included only in the amount necessary for an appreciation of principles involved and methods used. The main stress is on the interpretation of quantitative data affected by a multiplicity of causes, the understanding of the meaning of the usual measures employed and the legitimate fields of use of these measures. In general, the first course is designed to help the student state his question clearly, determine the method which will answer the question and establish the limits within which the answer has validity.

In addition, elective courses provide opportunities for basic grounding in statistical methods and analytical procedures which are of value to the student who will be engaged in the fields of epidemiology, of laboratory research or of administration.

### **Biostatistics 1a, b. Principles of Biostatistics**

Lectures and discussions. *Mondays, 9-10, and Wednesdays, 10-11, first period; Mondays, 10-11, and Wednesdays, 11-12, second period.* Laboratory, Monday or Wednesday, 2-5, in both periods. Staff of the Department.

Credit 3.5 units.

By means of lecture, laboratory, and discussion, the student is introduced to such subjects as: (1) the sources, methods of presentation, interpretation and uses of demographic data, (2) elementary methods of analysis of quantitative data such as measures of center and dispersion, sampling variability and significance testing, (3) probability theory and tests for association.

### **Biostatistics 2c, d. Epidemiologic Methods**

Lectures, discussions and laboratory. *Tuesdays and Thursdays, 2-5, third period; Tuesdays, 2-5, fourth period.* Dr. MUENCH and Staff.

Credit 3 units.

In the third period this course meets jointly with Biostatistics 3c, d, during which time the student is introduced to methods of general use in his attack

## HARVARD UNIVERSITY

on problems. This includes a further consideration of probability and an introduction to association and correlation, with illustrations from a wide field. The fourth period is devoted to the uses of life table methodology in the study of populations and in the analysis of chronic disease data, as well as to construction of simple mathematical models which may be used to measure forces of infection in populations. This course may be taken together with Biostatistics 3c, d, for a total credit value of 4 units.

Prerequisites: Biostatistics 1a, b; Epidemiology 1b; or their equivalents.

### **Biostatistics 3c, d. Laboratory Research Methods**

Lectures, discussions and laboratory. *Tuesdays and Thursdays, 2-5, third period; Thursdays, 2-5, fourth period.* Dr. WORCESTER and Staff.

Credit 3 units.

In the third period, this course is concurrent with Biostatistics 2c, d. In the fourth period the student is introduced to statistical technics used in planned laboratory studies including small sample theory, variance analysis, dosage response and the design of experiments. This course may be combined with Biostatistics 2c, d for a total credit value of 4 units.

Prerequisite: Biostatistics 1a, b or equivalent background in elementary statistics.

### **Biostatistics 5c, d. Seminar in Biostatistics**

Seminars. One period of two hours weekly throughout the third and fourth periods. Time to be arranged. Staff of the Department.

Credit 2 units.

This seminar is arranged primarily for the Department's staff. However, occasional students with special interest and sufficient preparation will be admitted.

### **Biostatistics 20. Biostatistical Research**

Time and credit to be arranged according to amount of work done.

Supervised individual work by students: (a) Those engaged on special projects in other departments who desire help in applying statistical methods. Under these circumstances, work may be combined with that taken under Course 20 in such departments. (b) Those who are interested primarily in the field of statistics.

# SCHOOL OF PUBLIC HEALTH

## DEPARTMENT OF EPIDEMIOLOGY

JOHN E. GORDON, S.B., PH.D., M.D., A.M. (hon.), F.R.C.P. (Lond.), *Professor of Preventive Medicine and Epidemiology and Head of the Department*

THEODORE H. INGALLS, A.B., M.D., SC.D. (hon.), *Associate Professor of Epidemiology*

A. DANIEL RUBENSTEIN, A.B., M.D., M.P.H., *Associate Clinical Professor of Epidemiology*

THOMAS F. PUGH, M.D., M.P.H., *Assistant Professor of Epidemiology*

CARL E. TAYLOR, S.B., M.D., F.R.C.P. (Canada), DR.P.H., *Assistant Professor of Preventive Medicine and Epidemiology*

F. RANDOLF PHILBROOK, S.B., M.D., M.P.H., *Associate in Epidemiology*

FRANK L. BABBOTT, JR., A.B., M.D., M.P.H., S.M. IN HYG., *Associate in Epidemiology*

HUGH L. C. WILKERSON, S.B., M.D., M.P.H., *Lecturer on Epidemiology*

JOHN J. POUTAS, A.B., M.D., *Visiting Lecturer on Epidemiology*

FRANCIS B. CARROLL, D.M.D., M.D., M.P.H., *Visiting Lecturer on Epidemiology*

CONRAD WESSELHOEFT, M.D., *Visiting Lecturer on Infectious Diseases*

RICHARD A. PRINDLE, M.D., M.P.H., *Visiting Lecturer on Epidemiology*

JOHN C. AYRES, S.B., M.D., M.P.H., *Instructor in Epidemiology*

JOHN B. WYON, B.A., M.B., B.CH., M.R.C.P., M.P.H., *Research Associate in Epidemiology*

JOAN G. BABBOTT, A.B., M.D., M.P.H., *Research Associate in Epidemiology*

C. GEORGE TEDESCHI, M.D., *Research Associate in Pathology*

UJIHIRO MURAKAMI, M.D., *Research Fellow in Epidemiology*

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LOUIS WEINSTEIN, S.M., PH.D., M.D., *Lecturer on Infectious Diseases*

Epidemiology is viewed as medical ecology and the diagnostic discipline of mass disease. Multifactorial causation is considered a principle in the origin of mass disease; therefore epidemiology is a multiphasic discipline. It draws upon skills within public health and upon the biological and social sciences.

The epidemiologic method enters into all mass disease, as does diagnosis in clinical medicine. It permits programs to be formed and measures of prevention and control to be instituted, based first on established cause and secondly on the nature of the individual problem. It is an integral part of public health practice whatever the field of interest, to such extent that epidemiological work in public health is done more by others than by the specialist. As a

## HARVARD UNIVERSITY

consequence, all workers in public health need to be familiar with the objectives and methods of epidemiology.

The initial required course, Epidemiology 1b, is limited to demonstration of principle and the applications to which those principles are turned.

Epidemiology 5c is an elective laboratory course on methods of field study of mass disease. Problems from acute and chronic infection provide the basic material for study. This course is for physicians, dentists and veterinarians desiring a second course in epidemiology and a presentation of practical means for solving health problems.

Epidemiological interests in fields other than the communicable diseases have had increasing attention in recent years. Epidemiology 6d is a laboratory course based on problems of acute and chronic non-infective disease and on mass injury. This course and Epidemiology 5c give experience in epidemiologic method and field procedure.

Course 2c is for students who wish to review current interests in the common communicable diseases of temperate climates. Course 3a,b,c,d is largely clinical and may be elected in one or all periods.

Course 7d is an advanced course primarily for students majoring in biostatistics, microbiology or epidemiology, and Course 8d is for students from the military services and for majors in epidemiology or departments of allied interest.

Epidemiology 15 runs throughout the academic year and is designed to give practice through independent and individual effort in applying epidemiologic method to analysis of mass disease. The course is for students preparing for careers in epidemiology, in microbiology, in administrative public health practice, including tropical public health and maternal and child health. Places in the course, limited to ten, ordinarily are allotted these several interests.

### **Epidemiology 1b. Principles of Epidemiology**

Lectures and seminars. *Mondays and Fridays, 11-1, Wednesdays, 12-1, second period.* DR. GORDON and associates.

Credit 2.5 units.

This introductory course outlines the means by which disease of human populations is recognized and by which the multiple factors in causation are evaluated, those which determine origin and also those which govern course and extent. The main concern is therefore with ecologic analysis of mass disease, in terms of environment, host and agent of disease, and according to time and place. This required course is limited to principles, which have developed primarily from knowledge of the communicable diseases. Illustrative examples of the application of these principles to other fields such as nutrition, traumatic injuries, mental disorder, industrial hygiene and chronic degenerative and neoplastic diseases are presented through seminar discussion, to give

## SCHOOL OF PUBLIC HEALTH

understanding of the present-day scope of epidemiology and the uses of the epidemiologic method.

Prerequisite: Biostatistics 1a, b.

### **Epidemiology 2c. Clinical Epidemiology**

Lectures, demonstrations, clinics and conferences. *Mondays and Wednesdays, 12-1; Clinics, Fridays, 3:30-5, third period.* Dr. INGALLS, Dr. WESSELHOEFT, Dr. WEINSTEIN.

Credit 1.5 units.

The common acute communicable diseases of temperate climates are presented. Methods of diagnosis, treatment and control are given and the movement of disease in small social groups is studied through analysis of recorded outbreaks within the structure of families, schools, camps, apartment houses, offices, and hospitals.

The course is for physicians who wish to review common communicable diseases with special reference to the problems of the health officer. Epidemiologists, veterinarians, dentists and students of other public health disciplines with demonstrated need for the course are admitted.

### **Epidemiology 3a, 3b, 3c, 3d. Clinical Infectious Diseases**

Clinics. *Saturdays, 9-11, first, second, third, or fourth periods.* Staff of the Haynes Memorial Hospital.

Credit .5 unit in each period.

Clinical conferences on the care and management of patients with acute infectious diseases are held weekly by the staff of the Haynes Memorial Hospital. Topics are selected according to available clinical material. Students may attend in one or more periods.

### **Epidemiology 5c. Practice of Epidemiology**

Laboratory exercises, conferences, seminars. *Tuesdays, Thursdays and Saturdays, 9-12, third period.* Dr. RUBENSTEIN, Dr. TAYLOR, Dr. FRANK BABBOTT.

Credit 3 units.

A laboratory course devoted to the epidemiology of acute communicable diseases. The aim is to provide experience in epidemiologic method through solving problems drawn mainly from current practice. Collection of field data and the analysis and interpretation of results are related to epidemic and endemic situations. Modes of infection are defined and the laws of epidemics examined. Principal sources and reservoirs of infection are studied. The epidemiologic behavior of individual diseases, so chosen as to represent major means of transmission is presented in systematic fashion. Correlation of clinical, field and laboratory procedures is emphasized in the development and

## HARVARD UNIVERSITY

evaluation of programs for prevention of infectious disease and the management of epidemics.

Prerequisite: Epidemiology 1b.

### Epidemiology 6d. Non-Infective Mass Disease and Injury

Laboratory exercises, conferences and seminars. *Tuesdays, 9-11, Thursdays, 9-12, fourth period.* Dr. INGALLS and associates.

Credit 2 units.

A laboratory course concerned with the origin and behavior of non-infective mass disease and injury. The main emphasis is on chronic conditions of degenerative, metabolic and neoplastic nature, and the factors that determine endemic distributions. Congenital anomalies and other disorders of growth and development are a second division. Traumatic mass injury, primarily accidents and chemical intoxications, represents acute conditions. Situations that give aggregation of cases and distributions of epidemic proportions are a further interest. Selected problems illustrate modifications in epidemiological method and procedure applicable to these diseases. Special consideration is given to surveys of incidence and prevalence, to case finding, sources of existing information, and to field methods of acquiring desired data through retrospective and prospective studies.

Prerequisite: Epidemiology 1b.

### Epidemiology 7d. Quantitative Method in Epidemiology

Lectures and seminars. *Saturdays, 9-11, fourth period.* Dr. IPSEN.

Credit 1 unit.

This course is designed for students with sound preparation in biology and biostatistics. The principal concern is with theoretical epidemiology and causality of mass disease. Quantitative methods are applied to analysis of the movements of disease in population groups with special consideration of the forces that act to produce epidemics.

### Epidemiology 8d. Military Preventive Medicine

Seminars. *Fridays, 10-12, fourth period.* Dr. GORDON and Dr. PHILBROOK.

Credit 1 unit.

A series of seminars, conferences and demonstrations mainly concerned with preventive medicine in the Army, Navy and Air Force, but giving attention to epidemiological activities of the Public Health Service and other national health agencies. Subjects are chosen to illustrate present day problems and the current direction of epidemiologic investigation. The aim is to enlarge, through selected examples from military and other governmental services, the knowledge of epidemiologic principle developed in earlier

## SCHOOL OF PUBLIC HEALTH

courses. A methodical or comprehensive presentation of military preventive medicine is not intended.

### **Epidemiology 15a, b, c, d. Advanced Epidemiology**

Seminars. *Wednesdays, 3-5, first and second periods; Wednesdays, 3:30-5:30, third and fourth periods; other time to be arranged.* DR. GORDON and DR. INGALLS.

Credit 1 to 3 units in each period.

An informal tutorial course designed to further a command of the epidemiologic method through individual training and practical experience. Each student takes a problem to be developed through field study, laboratory experiment or library investigation as circumstance directs. The problem is first defined, an analysis made of existing epidemiologic facts and an hypothesis constructed. The objective is the design of an experiment to provide an answer. These matters are the subject of seminars whereby the work of the individual is enlarged by group participation. Admission is by permission of the instructor and credit is in proportion to the amount of time devoted to the work. No more than ten students will be accepted.

### **Epidemiology 20. Research in Epidemiology**

Time to be arranged; admission subject to approval of the instructor. Work may be elected with any departmental staff member.

Qualified students are offered the opportunity to undertake special studies in the acute communicable diseases, or in community problems of non-infective processes or injuries. Problems may be assigned or aid provided in developing individual interests.

### **Epidemiology 30c. Operational Epidemiology**

Field visits, January 27-February 1, inclusive. DR. TAYLOR.

Credit 1 unit.

A week of planned visits in the New York area, limited to field and research activities in epidemiology, and including the Bureau of Preventable Diseases, Bureau of Laboratories, City of New York Department of Health, Public Health Research Institute, Lederle Laboratories, United Nations World Health Organization, Milbank Memorial Fund, American Public Health Association, and State University of New York Medical Center.

## HARVARD UNIVERSITY

### DEPARTMENT OF INDUSTRIAL HYGIENE

- PHILIP DRINKER, S.B., CHEM.E., S.D. (hon.), LL.D., A.M. (hon.), *Professor of Industrial Hygiene and Head of the Department*
- CONSTANTIN P. YAGLOU, B.A., S.B., M.M.E., A.M. (hon.), *Professor of Industrial Hygiene*
- LESLIE SILVERMAN, S.D., *Associate Professor of Industrial Hygiene Engineering*
- ROSS A. MCFARLAND, A.B., PH.D., S.D. (hon.), *Associate Professor of Industrial Hygiene*
- CHARLES R. WILLIAMS, PH.D., *Associate Professor of Applied Industrial Hygiene*
- RICHARD DENNIS, S.M., *Assistant Professor of Industrial Hygiene*
- CHARLES E. BILLINGS, S.M., *Assistant Professor of Industrial Hygiene*
- JERMYN FRANCIS MCCAHAN, M.D., *Assistant Professor of Industrial Medicine*
- ROBERT G. GALLAGHER, A.B., *Lecturer on Radiological Health*
- MELVIN N. NEWQUIST, A.B., S.B., M.D., *Visiting Lecturer on Industrial Hygiene*
- ALLEN D. BRANDT, S.D., *Visiting Lecturer on Industrial Hygiene Engineering*
- WILLIAM B. HARRIS, CHEM.E., S.M., *Visiting Lecturer on Industrial Hygiene Engineering*
- NATHAN VAN HENDRICKS, S.B., CHEM.E., *Visiting Lecturer on Industrial Hygiene Engineering*
- LAWRENCE S. COOKE, *Visiting Lecturer on Industrial Hygiene*
- ROBERT L. QUIMBY, A.B., M.D., C.M., *Visiting Lecturer on Industrial Medicine*
- HARRY J. WHITE, S.B., PH.D., *Visiting Lecturer on Industrial Hygiene Engineering*
- EMMA S. TOUSANT, LL.B., *Instructor in Industrial Hygiene*
- ROLAND C. MOORE, PH.D., *Research Associate in Industrial Hygiene*
- EDWARD KRISTAL, S.B., *Research Associate in Industrial Hygiene Engineering*
- CHARLES KURKER, JR., S.B., *Research Associate in Industrial Hygiene Engineering*
- EDWARD C. HICKEY, S.B. IN C.E., S.M., *Research Associate in Industrial Hygiene Engineering*
- WILLIAM A. BURGESS, S.M., *Assistant in Industrial Hygiene Engineering*
- FELIX STEIN, S.B., *Assistant in Industrial Hygiene Engineering*
- DAVID M. ANDERSON, S.M., *Research Fellow in Industrial Hygiene*
- MANSOOR O. WHARTON-ALI, B.SC., *Research Fellow in Industrial Hygiene*
- HARRIET L. HARDY, A.B., M.D., *Assistant Clinical Professor of Preventive Medicine*
- ALBERT O. SEELER, A.B., M.D., *Clinical Associate in Medicine*

## SCHOOL OF PUBLIC HEALTH

### **Industrial Hygiene 1c. Basic Problems in Industrial Hygiene**

Lectures and demonstrations. *Mondays and Fridays, 2-4, Wednesdays, 1:30-5, third period.* Professor DRINKER, Dr. SEELER, and associates.

Credit 3 units.

A course of lectures, demonstrations, and inspections showing the relation of working conditions to health, with special reference to elimination of industrial hazards and prevention and treatment of industrial disabilities and diseases. (Industrial Hygiene 1c and 8d are classified as Eng. 285.)

### **Industrial Hygiene 2a, b and 2c, d. Industrial Air Analysis**

Laboratory work. *Tuesdays and Thursdays, 2-5, all four periods.* Dr. SILVERMAN and Dr. WILLIAMS.

Credit 4 units in each term.

Determination and interpretation of adverse conditions found in work places of all types, such as factories and mills, and in assembly halls; methods employed in determining physical properties of the air, such as temperature, humidity, and air motion; atmospheric impurities and normal constituents of the air — gases, dusts, bacteria, and pollens; efficiencies of protective devices — masks, respirators, mechanical dust-collecting apparatus, hoods, and exhausters; efficiencies of air-conditioning equipment.

Course 2a, b (Eng. 281a) is intended for public health engineers and physicians enrolled in the Industrial Health program. Course 2c, d (Eng. 281b) is a continuation, primarily for students in industrial hygiene.

### **Industrial Hygiene 3a, 3b, 3c, 3d. Industrial Medical Clinics**

Time and credit to be arranged. Professor DRINKER, Dr. McCAHAN, Dr. HARDY, and associates.

Students participate in appropriate clinics at teaching hospitals and in medical clinics of various industries.

### **Industrial Hygiene 4a, b, c, d. Aviation Health and Safety**

Seminars. Two hours a week, time to be arranged, in all four periods. Dr. McFARLAND.

Credit 1 unit each period.

The purpose of these seminars is to integrate the work in the basic courses of public health and preventive medicine with the specialized problems of aviation health and safety. A series of round table discussions is arranged throughout the year, led by the students, the instructor, and various biological and medical specialists in the University.

Admission is by permission of the instructor.

## HARVARD UNIVERSITY

### **Industrial Hygiene 5c. Human Problems of Adjustment in Industry**

Lectures and demonstrations. *Mondays, Wednesdays and Fridays, 12-1, third period.* Dr. McFARLAND.

Credit 1.5 units.

The primary objective of this course is to apply the technics of the various biological sciences to the problems of adjusting workers to their jobs. The initial emphasis is on the selection and placement of workers and the design of equipment to meet human requirements. A study of job requirements is then made to determine the psychologic and physical demands placed upon the worker in achieving successful job placement. With this background, principles are derived for the control of accidents, operational fatigue, and other basic factors influencing efficiency and health. Attention is also given to the problems of gerontology and of workers with physical handicaps. The course is concluded with emphasis on mental and emotional adjustment of workers and factors influencing effective group functioning.

### **Industrial Hygiene 6c. Industrial Medicine**

Lectures and seminars. *Mondays, Wednesdays and Fridays, 9-11, third period.* Dr. McCAHAN and associates.

Credit 3 units.

This course reviews subjects vital to competent industrial medical practice. These include the organization, administration and functions of an industrial medical program, medico-legal aspects, insurance, rehabilitation, disability evaluation, plant medical records, relation of medical to plant safety, hygiene and sanitation, the small plant problem, industrial nurse functions, relation of trauma to disease, evaluating a plant's medical needs, and methods of program planning. Case studies of various plant medical problems are presented.

### **Industrial Hygiene 7d. Industrial Hygiene Engineering**

Lectures and problems. *Mondays, Wednesdays and Fridays, 2-4, fourth period.* Professor DRINKER and Dr. SILVERMAN.

Credit 3 units.

Control of industrial conditions by engineering methods; field trips, reports, design and operation of equipment. For engineers. (Industrial Hygiene 1c and 7d are classified as Eng. 282.)

### **Industrial Hygiene 8d. Hygienic Aspects of Ventilation and Air Conditioning**

Lectures. *Tuesdays and Thursdays, 8:30-10, fourth period.* Professor YAGLOU.

Credit 1.5 units.

## SCHOOL OF PUBLIC HEALTH

Selected topics in ventilation and air conditioning of interest to students in sanitary engineering and in public health. (Industrial Hygiene 1c and 8d are classified as Eng. 285.)

### **Industrial Hygiene 9d. Human Factors in Occupational Safety**

Lectures and seminars. *Thursdays, 11-1, fourth period.* Dr. McFARLAND.

Credit 1 unit.

Emphasis is placed on the role of human factors in industrial safety. Accident records and statistics in various industries are first analyzed. Different methods of control in relation to the role of human factors in accidents are then considered: (a) the selection and training of workers, (b) the design of equipment, working space, and working methods, (c) the control of environmental influences which impair performance, and (d) maintaining the efficiency of workers through an understanding of temporary conditions from a variety of causes.

### **Industrial Hygiene 10d. Special Environmental Problems**

Lectures and demonstrations. *Fridays, 10-12, fourth period.* Professor DRINKER and associates.

Credit 1 unit.

This course will cover air pollution as a problem of great cities and of industry, the legal aspects of pollution, the measurement, the physics and dynamics of the atmosphere, micrometeorology and pollution, the use of high stacks, and the design and operation of municipal incineration.

A series of lectures and demonstrations on noise control and evaluation conclude the course.

### **Industrial Hygiene 11a, b (Engineering 280). Heating and Air Conditioning**

Lectures. *Mondays, Wednesdays and Fridays, 8-9, fall term, at Pierce Hall,* Cambridge. Professor YAGLOU.

Credit 3 units.

Selected topics in heating and air conditioning of interest to students in mechanical and sanitary engineering and industrial hygiene. Primarily for engineers and physical science majors.

### **Industrial Hygiene 20. Research**

A limited number of qualified students will be given an opportunity to do research work in problems of industrial health including occupational disease, toxicology, air cleaning, heating, ventilating, and air conditioning, by arrangement with the head of the Department.

## HARVARD UNIVERSITY

### Industrial Hygiene 40c, d (Engineering 286). Aerosol Technology

Lectures and laboratory work, at the School of Public Health. Time to be arranged. Assistant Professor BILLINGS.

Credit 4 units.

A general discussion of aerosol properties and their behavior. An advanced course for engineers interested in air pollution evaluation and control.

Prerequisite: Industrial Hygiene 2c,d, which may be taken concurrently.

## DEPARTMENT OF MATERNAL AND CHILD HEALTH

MARTHA M. ELIOT, A.B., M.D., L.H.D., S.D. (hon.), LL.D., *Professor of Maternal and Child Health and Head of the Department*

HAROLD C. STUART, LITT.B., M.D., A.M. (hon.), *Professor of Maternal and Child Health*

BERTHA S. BURKE, A.M., *Associate Professor of Maternal and Child Nutrition*

ELIZABETH P. RICE, A.B., S.M., *Associate Professor of Public Health Social Work*

WILLIAM M. SCHMIDT, M.D., *Associate Professor of Maternal and Child Health*

SAMUEL B. KIRKWOOD, A.B., M.D., *Clinical Professor of Maternal Health and Commissioner of Public Health, Department of Public Health of Massachusetts*

PAULINE G. STITT, M.D., M.P.H., *Assistant Professor of Maternal and Child Health*

ISABELLE VALADIAN, M.D., M.P.H., *Associate in Child Health*

LEONA BAUMGARTNER, PH.D., M.D., S.D. (hon.), *Visiting Lecturer on Maternal and Child Health*

JOHN F. BELL, A.B., M.D., M.P.H., *Visiting Lecturer on Child Health*

HAROLD JACOBZINER, S.B., M.D., M.P.H., *Visiting Lecturer on Maternal and Child Health*

ELLA LANGER, M.D., *Visiting Lecturer on Maternal and Child Health*

ARTHUR J. LESSER, A.B., M.D., M.P.H., *Visiting Lecturer on Maternal and Child Health*

ARDYCE I. SORENSEN, S.M., *Instructor in Maternal and Child Nutrition*

MAURICE M. OSBORNE, JR., M.D., *Instructor in Child Health*

LEON STERNFELD, S.B., M.D., PH.D., M.P.H., *Instructor in Maternal and Child Health and Health Officer of Cambridge*

CONSTANCE A. KURKUL, S.M., *Assistant in Public Health Nursing*

## SCHOOL OF PUBLIC HEALTH

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CHARLES A. JANEWAY, A.B., M.D., *Thomas Morgan Rotch Professor of Pediatrics*  
WILLIAM T. GREEN, A.M., M.D., *Clinical Professor of Orthopedic Surgery*  
CLEMENT A. SMITH, A.M., M.D., *Associate Professor of Pediatrics at the Boston Lying-in Hospital*

J. ROSWELL GALLAGHER, A.B., M.D., *Lecturer on Pediatrics*  
RANDOLPH K. BYERS, M.D., *Assistant Clinical Professor of Pediatrics*  
RALPH A. ROSS, A.B., M.D., *Assistant Clinical Professor of Pediatrics*  
LONDON SNEDEKER, A.B., M.D., M.P.H., *Instructor in Pediatrics*  
EDWARD E. HUNT, JR., PH.D., *Lecturer on Anthropology*  
ROBERT J. HAGGERTY, A.B., M.D., *Instructor in Pediatrics*

The public health activities and measures which contribute to successful maternal and child health programs are based upon scientific knowledge of the mother and child and of medical, social, emotional and cultural conditions during maternity and childhood, including knowledge of the care and rehabilitation of sick and handicapped children.

The program of the Department is designed to provide scientific knowledge of health measures and of basic principles underlying the protection of maternity and the growth and healthy personality development of normal and handicapped children. It is also designed to develop and show how to apply such knowledge in programs for children and their families. The curriculum in Maternal and Child Health utilizes knowledge derived from medicine, statistics, epidemiology, public administration, and the basic sciences and applies this to the operation of programs for maternal and child health and crippled children.

The content of maternal and child health programs, program planning, organization, methods, procedures and administration and the additional requirements of organized care of handicapped children are studied. The Department does not provide courses in clinical pediatrics, obstetrics or other clinical subjects, other than Maternal and Child Health 6d.

Seminars and lectures covering these problems are held throughout the academic year and are usually led by a multiprofessional team representing this and other Departments.

Field demonstrations and visits will be arranged from time to time throughout the year, especially during the second semester.

Students majoring in Maternal and Child Health are required to take Maternal and Child Health 1a,b, Maternal and Child Health 2c,d, Maternal and Child Health 3c, and Maternal and Child Health, 3oc,d, and to do individual work as described under Maternal and Child Health 20—Special Projects. The Department offers an advanced course on the Research Approach to Growth, Development and Health of the Child—Maternal and

## HARVARD UNIVERSITY

Child Health 5c,d. Students majoring in Maternal and Child Health are encouraged to spend two months in field experience at the end of the academic year. Arrangements will be made in accordance with the individual student's needs.

In addition to the courses required for the Master of Public Health degree, students majoring in Maternal and Child Health are advised to take as many of the following courses as their schedule permits, Public Health 1a, The Human Community; Environmental Hygiene 1b; either Nutrition 4c or 6d; Principles of Supervision and Consultation, Public Health Practice 44c,d; Organization of Medical Care, Public Health Practice 2a,b; Mental Health Problems, Public Health Practice 9c,d; and Public Health Practice 10c,d. Students registering for doctoral degrees in Maternal and Child Health will do the research work required for the doctoral thesis under Maternal and Child Health 21.

Students majoring in Public Health Practice or in other Departments may elect the major courses in Maternal and Child Health. The Department is also offering an elective, Problems of Administration and Organization of Maternal and Child Health and Crippled Children Programs, Maternal and Child Health 4c,d, for students majoring in other Departments. This course will not cover the content of Maternal and Child Health 1a,b—2c,d with respect to basic knowledge of the child himself or the detailed content of programs designed to meet his health and social needs.

Maternal and child health courses are organized principally on a panel or seminar basis, with introductory lectures as required. Active student participation in discussions is expected.

### **Maternal and Child Health 1a, b. Growth and Development during Maternity, Infancy and Preschool Years; Programs to meet the Health and Social Needs of these Age Periods**

Lectures and seminars. *Tuesdays and Thursdays, 2-4, alternate Wednesdays, 4-5:30, first and second periods.* Dr. ELIOT, associates and visiting lecturers.

Credit 4 units.

This course deals with the characteristics, problems and needs of mothers and children during maternity, the neonatal period, infancy, and the pre-school years which must be understood in order to plan on a local or state-wide basis for programs of service provided by public or voluntary health agencies for women during maternity and for normal and handicapped children up to school age.

The course will cover the physical, mental, social and emotional aspects of growth and development of the young child, including the role of nutrition, sleep, play, family and community life, social, medical and economic

## SCHOOL OF PUBLIC HEALTH

situations, parent education, nursery education, and the complex of factors that make for mental health and social adjustment.

Methods of organizing and administering maternal and preschool child health services within the framework of state and local health departments and in cooperation with voluntary health agencies will be discussed. Various ways of providing services and facilities to assure the best possible maternal care and the healthy personality development of the infant and young child will be studied.

There will be included study of methods of providing medical services, public health, maternity and pediatric nursing services, nutrition, social services, mental health and other special services appropriate to a program of maternal and child health in public health. Methods and purposes of cooperation with hospital and clinic facilities and with programs of care for crippled or otherwise handicapped children will be discussed. Adaptations of regular programs to meet the needs of physically, mentally, socially or emotionally handicapped children will be included.

The relationship of these health services to, and ways of cooperating with, other public and voluntary programs and services such as departments of welfare, nursery education, and mental health will be presented. The values of the multiprofessional team approach to the total problem of child care will be emphasized.

As appropriate, discussions will include (1) the use of vital statistics and population data in planning, operating, and extending programs; (2) fact finding studies and the importance of making facts available to the public; (3) evaluation of on-going programs; and (4) demonstrations and action research.

Case material will be presented illustrating local and state programs, policy, and methods, and the values and use of fact finding studies in the planning and implementation of programs.

Maternal and Child Health 1a,b is required for Maternal and Child Health majors. Students majoring in Public Health Practice and other students, with the permission of the Head of the Department of Maternal and Child Health, may elect this course. Since Maternal and Child Health 2c,d is a continuation of Maternal and Child Health 1a,b, students taking this course are encouraged to take Maternal and Child Health 2c,d also. To the extent feasible, arrangements will be made for students taking Maternal and Child Health 1a,b to visit, during the first semester, local health clinics for maternity and newborn infant care and infant and preschool child care.

## HARVARD UNIVERSITY

### Maternal and Child Health 2c, d. Growth and Development during School Years and Adolescence; Programs to meet the Health and Social Needs of these Age Periods

Lectures and seminars. *Mondays, Wednesdays and Fridays, 9-11, third period; Mondays and Wednesdays, 9-11, Fridays, 10-12, fourth period.* Dr. ELIOT, associates and visiting lecturers.

Credit 6 units.

This course is a continuation of Maternal and Child Health 1a, b. Discussions will relate to the characteristics, problems and needs of children of school age and adolescents, including physical growth and care and the mental, social and emotional aspects of healthy personality development.

Planning, organizing and administering health services for these age groups in the community, including services in the schools, will be studied. Emotional disturbances, aggressive behavior, and other common physical and social maladjustments of late childhood and adolescence will be discussed. Emphasis will be placed on the varying opportunities for the prevention and treatment of asocial behavior among school age children and youth that are the responsibility of maternal and child health services and other agencies, such as, child guidance and mental health clinics, agencies concerned with education, welfare, employment, rehabilitation and correction and with law enforcement services.

The importance of basic research and fact finding studies, operational or action research, and of reporting findings to the public; the values of good public relations; and the leadership responsibilities of maternal and child health personnel will be developed.

Throughout Maternal and Child Health 1a,b and 2c,d there will be consideration of some administrative and procedural aspects of state and local maternal and child health and crippled children programs assisted by Federal grants-in-aid to states and those under voluntary agencies and other auspices. In Maternal and Child Health 2c,d, the values and process of planning and the preparation of written plans, the organization and operation of programs of medical, hospital, clinic and after care for children, and the evaluation of programs will be studied. With respect to these aspects of the administration, some classes will be held jointly with Maternal and Child Health 4c,d. Occasional joint sessions with Public Health Practice 11c,d will also be arranged.

This course is required for Maternal and Child Health majors. Students majoring in Public Health Practice and other students with the permission of the Head of the Department of Maternal and Child Health may elect this course. Maternal and Child Health 1a,b is a prerequisite to Maternal and Child Health 2c,d. If a student demonstrates that the equivalent of

## SCHOOL OF PUBLIC HEALTH

Maternal and Child Health 1a,b has already been taken elsewhere, the Head of the Department may make an exception.

During the second semester, students majoring in Maternal and Child Health will be required to visit, under Maternal and Child Health 31c,d, community programs offering various types of services to children, and to go on at least one five-day trip under Maternal and Child Health 30c,d.

### **Maternal and Child Health 3c. Social Problems and Available Social Services for Children**

Seminars. *Thursdays, 9-11, third period.* Miss RICE and associates.

Credit 1 unit.

This course will cover the historical development of child welfare services, discussions of such problems as foster home and institutional care of children, adoption, illegitimacy, medical neglect, child delinquency, social legislation and organization of community services for children.

### **Maternal and Child Health 4c, d. Problems of Administration and Organization of Maternal and Child Health and Crippled Children Programs**

Seminars. *Tuesdays, 11-1, third and fourth periods.* Dr. ELIOT and associates.

Credit 2 units.

This course will deal with planning, organizing and administering programs of maternal and child health at various levels of government and voluntary agency operation. It is designed primarily for students who are not specializing in maternal and child health but who are concerned with the principles of administering a maternal and child health program within a department of health, including also programs of medical care of crippled and handicapped children whether within or outside departments of health, and relation of maternal and child health programs to other programs in state or local government settings such as child welfare and education.

Discussions will cover relationships between maternal and child health program and the total work of a health department; patterns of organization and their relationship to total community planning for children; program planning, and the establishment of priorities for operations; the need for services and values of built-in methods of analysis of program effectiveness; preparation and use of standards of service and care; methods and values of teamwork; preparation and use of state and local plans for maternal and child health program; administrative methods useful in program planning and operation of maternal or child care or care of handicapped children in clinics, hospitals, institutions and at home; relationships of maternal and child health program to professional organizations, voluntary agencies, and

## HARVARD UNIVERSITY

to citizens' groups and organizations; problems of community understanding and support; advisory committees; sources of information on maternal and child health programs and on growth and development of children.

### **Maternal and Child Health 5c, d. Research Approach to Growth, Development and Health of the Child**

Seminars. *Tuesdays, 11-1, third and fourth periods.* Drs. STUART, REED and associates.

Credit 2 units.

This course will utilize case studies to reveal the range of individual differences and varieties of patterns of progress in health and development. It will deal with selected aspects of physical, psychological and social progress at all ages of childhood from birth to eighteen years.

Methodologies for obtaining data in the various fields of child study will be considered, as well as the evaluation of these data and the construction of norms. The problems involved in the study of interrelationships between various aspects of progress and between the child and his background and environment will receive particular attention.

This course will be designed to provide understanding of the problems involved in the evaluation and comparison of different populations of children and setting up studies of growth and development in different areas.

This course will not present elementary knowledge of Growth and Development, as covered in the basic Maternal and Child Health courses. Therefore, those choosing it must have had such courses or evidence of experience with and knowledge of the growth and development of children.

### **Maternal and Child Health 6d. Recent Advances in Obstetrical Care**

Seminars. *Mondays, 4-5, clinic time to be arranged, fourth period.* Dr. KIRKWOOD.

Credit 1 unit.

This course consists of informal discussions, demonstrations and ward rounds. It is designed for students with degrees in medicine who may have been out of recent contact with clinical obstetrics and gynecology and stresses the important advances in the medical care of the mother, particularly as they relate to the administration of maternal and child health programs.

### **Maternal and Child Health 20. Special Projects**

This work is designed specifically for students majoring in maternal and child health or a closely related field. It affords these students an opportunity to do individual work for credit under instructor guidance on problems relating to this special field. In certain circumstances the individual work may be done in association with a student group. Each program will be arranged

## SCHOOL OF PUBLIC HEALTH

in conference between student and instructor and must be accepted in advance by the Head of the Department. In general, such programs will include review of the literature on the subject selected, field observations including original work, and a paper reporting the work done. Students majoring in maternal and child health are required to have 2 units of credit in this course in each of the third and fourth periods.

### **Maternal and Child Health 21. Research**

This work is designed specifically for students registering for doctoral degrees in Maternal and Child Health. It provides the opportunity for individual research required as a basis for the doctoral thesis. The work would be under the supervision of the Advisory Committee appointed to supervise the research and preparation of the candidate's thesis.

### **Maternal and Child Health 30c and 30d**

Field trips for observation of maternal and child health services. Three to five days each, during periods in January and April. Dr. STITT, Miss VARLEY, Miss RICE and associates.

Credit 1 unit for each five-day trip.

Students taking these field exercises have opportunities to see programs in operation under Departments of Maternal and Child Health and to participate in discussions with members of these departments regarding practical problems of service and administration. At least one five-day period is required of those majoring in the Department.

### **Maternal and Child Health 31c and 31d**

During the third and fourth periods, group field visits, special clinics and individual field assignments are made on Thursdays for which credit up to one unit per period will be given.

# HARVARD UNIVERSITY

## DEPARTMENT OF MICROBIOLOGY

JOHN C. SNYDER, A.B., M.D., *Professor of Microbiology and Head of the Department*

EDWARD S. MURRAY, A.B., M.D., M.P.H., *Associate Professor of Microbiology and Assistant Medical Adviser to the Department of Hygiene*

JOHANNES IPSEN, C.A., C.M., DR.MED., M.P.H., *Associate Professor of Public Health and Superintendent of the Institute of Laboratories, Massachusetts Department of Public Health*

ROBERT S. CHANG, S.B., M.D., S.D. IN HYG., *Assistant Professor of Microbiology*

SAMUEL D. BELL, JR., A.B., M.D., M.P.H., *Assistant Professor of Microbiology*

HERALD R. COX, A.B., S.D. (hon.), *Visiting Lecturer on Microbiology*

GEOFFREY EDSALL, M.D., *Visiting Lecturer on Microbiology*

RICHARD H. DAGGY, S.M., PH.D., M.P.H., *Visiting Lecturer on Entomology*

GILBERT J. DALLDORF, S.B., M.D., *Visiting Lecturer on Microbiology*

ROBERT J. HUEBNER, M.D., *Visiting Lecturer on Microbiology*

ROBERT B. PENNELL, S.M., PH.D., *Lecturer on Immunology*

JAMES A. McCOMB, D.V.M., *Instructor in Public Health Immunology and Director of Biologic Laboratories, Department of Public Health of Massachusetts*

JOHN M. NEWELL, A.B., S.D., *Instructor in Public Health Immunology*

CATHARINE ATWOOD, A.B., *Instructor in Public Health Bacteriology*

AZMI T. HANNA, M.B., B.CH., M.P.H., *Research Associate in Microbiology (Absent 1957-58)*

DOROTHY E. McCOMB, S.B., *Assistant in Microbiology*

JOHN W. VINSON, S.B., *Assistant in Microbiology*

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ROBERT A. MACCREADY, S.B., M.D., *Associate in Bacteriology and Immunology and Assistant Director of Diagnostic Laboratories, Department of Public Health of Massachusetts*

The students in the School of Public Health may be considered in three categories as regards their previous training in microbiology.

(a) *Students who have had satisfactory previous instruction but who have not had extensive experience in the field.* Most of the candidates for the degree of Master of Public Health belong in this group. The regularly scheduled courses in microbiology in the School of Public Health are designed primarily for these students.

(b) *Students whose background in microbiology is negligible.* In this group are those students whose previous instruction was received many years before

## SCHOOL OF PUBLIC HEALTH

their matriculation in the School of Public Health, and whose activities have not brought them into contact with the developments in bacteriology. Also in this group are the students whose previous instruction was incomplete or unsatisfactory for various reasons. This group is advised to take a basic course in bacteriology and immunology prior to enrollment in the Harvard School of Public Health.

Students in this category are required to complete satisfactorily a basic course in medical or sanitary bacteriology in order to be eligible for the Master of Public Health degree.

(c) *Students who have had extensive experience and who are familiar with the principles and standard methods.* Opportunities for advanced study and research are available for the students in this category. By arrangement with the Massachusetts Department of Public Health, students may study in the Institute of Laboratories, which includes the Biologic Laboratories, the Wassermann Laboratory, and the Diagnostic Laboratory. Courses in various aspects of sanitary bacteriology are given by the Department of Sanitary Engineering. Suitably qualified students may wish to take advanced work in the Department of Microbiology or choose from courses in advanced bacteriology which are described in detail in the official register of the Division of Medical Sciences of the Graduate School of Arts and Sciences.

### **Microbiology 1a, b. Principles of Bacteriology and Immunology**

Lectures and demonstrations. *Tuesdays and Thursdays, 9-10, first and second periods.* Department Staff.

Credit 2 units.

This course considers the bacteria, viruses and rickettsiae which are pathogenic for man. The principles of bacteriology and immunology are discussed in relation to the problems of public health with emphasis on recent developments. The course is designed particularly for students who will be concerned with communicable diseases.

Prerequisite: Medical or sanitary bacteriology.

### **Microbiology 2c, d. Current Research in Microbiology**

*Thursday, 12-1, third and fourth periods.* DR. SNYDER.

Credit 1 unit.

This course is arranged for the students who are concentrating in microbiology, epidemiology or tropical public health. Important papers from current periodicals on topics of general interest are assigned to the students for presentation. These papers are considered critically in respect to evaluation of the experimental work, analysis of the results, organization of the manuscripts, and clarity of presentation.

## HARVARD UNIVERSITY

The purpose of the course is to develop the ability of the students to read the literature analytically and to plan their own work and manuscripts effectively.

Prerequisite: Microbiology 1a, b or equivalent previous instruction.

### Microbiology 11b. Public Health Laboratory Procedures

Lectures, seminars, and laboratory exercises. *Tuesdays and Thursdays, 2-5, Wednesdays, 2-3, second period.* Dr. MURRAY, Dr. CHANG, and Dr. BELL.

Credit 2 units.

This course considers briefly the standard laboratory technics and includes recent methods for study of representative rickettsiae and viruses. It is designed for students who are likely to be involved in various relations with public health laboratories.

Short exercises illustrate the important principles of tests in serology and bacteriology. In the portion of the course devoted to rickettsiae and viruses the students themselves inoculate embryonated eggs and animals by various routes, prepare diagnostic antigens, and perform neutralization tests and red cell agglutination tests.

Limited to fourteen students who have completed Microbiology 1a.

### Microbiology 12a. Biological Products in Public Health

Seminars and laboratory demonstrations at the Institute of Laboratories of the Massachusetts Department of Public Health. *Tuesdays, 2-3:30, first period.* Dr. IPSEN, Dr. McCOMB, and Dr. NEWELL.

Credit 1 unit.

In this course, technics for production of biological products used in public health are demonstrated. Seminar discussions deal with the practical importance of biologics in control of communicable disease and their appropriate uses.

Opportunities are offered properly qualified students for original work at the Institute in problems of Public Health Immunology with credit for Course Microbiology 20 to be arranged with the Head of the Department.

### Microbiology 13c. Rickettsial and Viral Diseases of Public Health Importance

Lectures, laboratory exercises, and seminars. *Mondays and Wednesdays, 2-5, third period, and four hours per week individual laboratory work.* Drs. CHANG, BELL, and MURRAY.

Credit 3 units.

The purpose of this course is to teach the basic principles involved in the technics for laboratory study of certain rickettsiae and viruses which are of

## SCHOOL OF PUBLIC HEALTH

interest to public health workers. The course consists of lectures, seminars, supervised individual work, and laboratory exercises. The latter include methods for identification of representative species of rickettsiae and viruses of public health importance by the use of tissue culture, animal inoculation, and serologic technics.

The arthropods which are vectors or reservoirs of the major viral and rickettsial diseases are briefly considered at appropriate points in the exercises.

The course is planned as a basic preparation for those who will be involved in investigations of rickettsiae or viruses either in the laboratory or the field.

Limited to ten students who have completed Microbiology 11b or who have had equivalent previous preparation.

### **Microbiology 15a, b, c, d. Problems in Serology**

Laboratory exercises. Time and credit to be arranged. Dr. MURRAY and Dr. CHANG.

Laboratory exercises on certain phases of current serologic technics are offered to students who have had adequate previous laboratory experience.

Prerequisite: Microbiology 11b, or the equivalent.

### **Microbiology 20. Research**

Students who have had adequate experience in microbiology may do research in the laboratories of the Department. Time and credit to be arranged with the head of the Department.

## HARVARD UNIVERSITY

### DEPARTMENT OF NUTRITION

FREDRICK J. STARE, S.M., PH.D., M.D., A.M. (hon.), *Professor of Nutrition and Head of the Department*

DAVID M. HEGSTED, S.M., PH.D., *Associate Professor of Nutrition*

ROBERT P. GEYER, S.M., PH.D., *Associate Professor of Nutrition*

JEAN MAYER, B.A., PH.D., D.SC., *Associate Professor of Nutrition*

MARTHA F. TRULSON, S.B., M.P.H., S.D. IN HYG., *Associate Professor of Nutrition*

THEODORE B. VAN ITALLIE, S.B., M.D., *Assistant Professor of Clinical Nutrition*

STEPHEN B. ANDRUS, S.B., M.D., *Assistant Professor of Pathology*

STANLEY N. GERSHOFF, A.B., S.M., PH.D., *Assistant Professor of Nutrition*

OSCAR W. PORTMAN, S.B., M.D., *Assistant Professor of Nutrition*

JOSEPH J. VITALE, S.M., S.D. IN HYG., *Assistant Professor of Nutrition*

MARY Q. BOLLIGER, A.B., S.M., PH.D., *Associate in Nutrition*

NEVIN S. SCRIMSHAW, PH.D., M.D., *Visiting Lecturer on Nutrition*

RENA R. HASKER, S.B., A.M., *Instructor in Nutrition*

ELIZABETH K. CASO, S.M., *Instructor in Nutrition*

MADGE L. MYERS, A.B., S.M., *Instructor in Nutrition*

MARY B. McCANN, S.B., M.P.H., *Instructor in Nutrition*

F. RUSSELL OLSEN, A.B., *Research Associate in Nutrition*

ROBERT T. SCHOLES, S.B., M.D., D.T.M. & H., *Research Associate in Nutrition* (Absent 1957-58)

CARLOS COLLAZOS, M.D., M.P.H., *Research Associate in Nutrition* (Absent 1957-58)

JAMES E. ANLIKER, S.M., PH.D., *Research Associate in Nutrition*

LOUIS C. FILLIOS, A.B., S.D. IN HYG., *Research Associate in Nutrition*

IRENA ANTONOWICZ, M.SC., *Research Associate in Nutrition*

GRETCHEN E. COLLINS, S.B., ED.M., *Research Associate in Nutrition* (Absent 1957-58)

MARIA BANASIEWICZ-RODRIGUEZ, M.D., M.P.H., *Research Associate in Nutrition*

ETHEL J. BOWIE, S.B., *Assistant in Nutrition*

PATRICIA A. STEFANIK, S.M., *Assistant in Nutrition*

JEAN M. HOEGGER, S.B., *Assistant in Nutrition*

MOTOOMI NAKAMURA, M.D., D.MED.SC., *Research Fellow in Nutrition*

SEORAS D. MORRISON, B.SC., PH.D., *Research Fellow in Nutrition*

LEO P. PICHETTE, B.A., M.D., *Research Fellow in Nutrition*

ROBERT L. ASTI, B.SC., M.D., *Research Fellow in Nutrition*

## SCHOOL OF PUBLIC HEALTH

KAROLY G. PINTER, M.D., *Research Fellow in Nutrition*

MARJORIE G. WHITING, S.B., A.M., M.P.H., *Research Fellow in Nutrition*

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A. BAIRD HASTINGS, S.B., PH.D., S.D. (hon.), *Hamilton Kuhn Professor of Biological Chemistry*

JAMES H. SHAW, S.M., PH.D., *Associate Professor of Biological Chemistry in the School of Dental Medicine*

IRA GORE, A.B., M.D., *Assistant Clinical Professor of Pathology*

WILLIAM R. WADDELL, S.B., M.D., *Clinical Associate in Surgery*

NORMAN ZAMCHECK, A.B., M.D., *Instructor in Medicine*

WADI ANTONIO BARDAWIL, B.SC., M.D., *Research Associate in Pathology*

EARL E. HELLERSTEIN, M.D., *Research Associate in Pathology*

### Nutrition 1a, 1b. Nutrition Seminar

Seminars. Time to be arranged, first and second periods. Dr. GERSHOFF and Staff of the Department.

Credit .5 unit in each period.

Brief discussions of classical literature in fundamental and applied nutrition. Admission limited and subject to the approval of the instructor. In addition, a journal club covering current literature and organized with the participation of the students meets informally on a day to be announced later.

### Nutrition 2b, c. Biochemistry and Physiology of Nutrition

Lectures. *Tuesdays and Thursdays, 2-3:30, second period; Mondays and Fridays, 2-3:30, third period; and three hours per week, time to be arranged with the instructors.* Dr. HEGSTED and Dr. MAYER.

Credit 4.5 units.

This course deals with the fundamentals of the chemistry and physiology of nutrition. The chemistry, function, and metabolism of carbohydrates, fats, proteins, vitamins and essential minerals are considered. The course is planned for those specializing in nutrition and who have adequate training in biochemistry and physiology.

Prerequisite: Organic and biological chemistry, physiology, and consent of instructors.

### Nutrition 3c, d. Laboratory Technics

Lectures and demonstrations. *Thursdays, 10-12, third and fourth periods.* Dr. GEYER.

Credit 2 units. Additional credits can be arranged for those desiring extra laboratory instruction.

## HARVARD UNIVERSITY

This course is a survey of methods pertinent to laboratory research. The material covered includes biophysical and chemical technics. Students participate in the preparation and presentation of such general topics as chromatography, spectroscopy, microbiological assay, manometric measurements, and purified diet technics. They are then instructed in the actual laboratory procedure pertaining to these technics.

Prerequisites: A basic course in biochemistry and consent of instructor.

### Nutrition 4c. Public Health Nutrition

Lectures. *Mondays, Wednesdays and Fridays, 11-12, third period.* Dr. STARE and associates.

Credit 1.5 units.

This course deals with the practical application of the science of nutrition to the problems of human nutrition, especially in the field of public health. The first three lectures are a review of basic nutrition, and students who have taken Nutrition 2b or are properly qualified will be excused from these lectures. Dietary requirements are considered in their relation to growth, development, disease, pregnancy, lactation, and the formation and maintenance of dental structures. Methods for establishing the minimum and optimum nutritional requirements, together with the problems of meeting these requirements, especially for low income groups, are discussed. The purposes and value of nutrition surveys are discussed along with methods of procedure and evaluation of measurements obtained. The place of the nutritionist in the public health program is considered and various fields of a well-rounded nutrition service are discussed as it correlates with the activities of health, welfare, educational, and industrial organizations. The effect of various environmental, social, economic, and psychologic factors upon food habits is also studied as these factors influence the nutritional status of an individual or group of people. The consequences of nutritional deficiencies and the relation of optimum nutrition to national and international health and economy are discussed. The nutritional problems of relief, rehabilitation, famine, and other emergencies are dealt with. The relation of production, distribution, and preparation for the best use of foods is discussed, as are also the problems of food enrichment and fortification.

### Nutrition 5d. Dietary Evaluation

Lectures and laboratory exercises. *Tuesdays, 9-11, fourth period.* Dr. TRULSON.

Credit 1 unit.

Methods for obtaining a diet history are discussed and illustrated. The origins, accuracy, and use of food composition tables are considered and their use in translation of the diet history into equivalent food values is illustrated.

## SCHOOL OF PUBLIC HEALTH

The principles of nutritional surveys and studies for public health programs and clinical researches are discussed. Laboratory work will consist of practical exercises in evaluating diets and surveys.

### **Nutrition 6d. Human Nutritional Disease**

Lectures. *Mondays, 11-1, Fridays, 9-10, fourth period.* Dr. VAN ITALLIE.

Credit 1.5 units.

This course is concerned with (a) nutritional aspects of internal medicine and surgery, (b) the clinical manifestations of nutritional diseases, and (c) the use of nutrients in therapy and supportive care. Consideration is given to such special topics as assessment of nutriture, nutritional survey technics, and obesity. Arrangements can be made for members of the class who are interested to visit various Boston hospitals to study illustrative clinical problems at the bedside.

### **Nutrition 7c, 7d. Advanced Topics in Nutrition**

Seminars. Time to be arranged, third and fourth periods. Drs. PORTMAN and VITALE and Staff of the Department.

Credit .5 unit in each period.

Properly qualified students present a topic followed by discussion.

Prerequisites: Nutrition 2b and consent of instructor.

### **Nutrition 20. Individual Research or Study**

Time (at least two half-days per week) and credit to be arranged. Staff of the Department.

Facilities are available for advanced work in nutrition along the lines of fundamental research or applied nutrition in public health and medicine.

Admission limited and subject to approval of the instructor.

## HARVARD UNIVERSITY

### DEPARTMENT OF PHYSIOLOGY

JAMES L. WHITTENBERGER, S.B., M.D., *Professor of Physiology and Head of the Department*

JERE MEAD, S.B., M.D., *Associate Professor of Physiology*

WILLIAM H. FORBES, DR. PHIL., M.D., *Lecturer on Physiology*

BENJAMIN G. FERRIS, JR., A.B., M.D., *Assistant Professor of Physiology*

MARY O. AMDUR, S.B., PH.D., *Assistant Professor of Physiology*

ERIK BERGLUND, A.B., M.D., *Associate in Physiology* (Absent 1957-58)

WILLEM S. FREDERIK, M.D., PH.D., S.M. IN HYG., *Lecturer on Physiology*

DAVID B. DILL, S.B., PH.D., *Visiting Lecturer on Physiology*

AUSTIN F. HENSCHER, S.B., PH.D., *Visiting Lecturer on Physiology*

STANLEY J. SARNOFF, A.B., M.D., *Visiting Lecturer on Physiology*

N. ROBERT FRANK, A.B., M.D., *Instructor in Physiology*

HARBEN J. BOUTOURLINE-YOUNG, M.B., B.S., M.D., *Research Associate in Physiology* (Absent 1957-58)

ROBERT DENTON, A.B., M.D., *Research Associate in Physiology*

ROBERT G. MONROE, A.B., M.D., *Research Fellow in Physiology*

BIRGER GRAPE, M.D., *Research Fellow in Physiology*

IRWIN GRIBETZ, A.B., M.D., *Research Fellow in Physiology*

HARRY B. MARTIN, A.B., M.D., *Research Fellow in Physiology*

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CHARLES D. COOK, A.B., M.D., *Associate in Pediatrics*

### Physiology 1a, b. Human Physiology and Its Applications to Public Health

Lectures and demonstrations. *Tuesdays and Thursdays, 1-2, first and second periods.* DR. WHITTENBERGER and associates.

Credit 2 units.

A course in human physiology, with particular emphasis on aspects which are of importance in specific public health problems. The course is designed primarily for students of engineering science; it is recommended also to those who need additional physiologic background for work in other fields. The course is prerequisite to Physiology 2c for those who lack adequate training in physiology.

### Physiology 2c. Environmental Physiology

Lectures and conferences. *Tuesdays and Thursdays, 12-1, third period.* DR. WHITTENBERGER and associates.

Credit 1 unit.

## SCHOOL OF PUBLIC HEALTH

This course is designed to supplement the physiologic aspects of Environmental Hygiene 1b. Subject matter will include physical fitness, exercise and work under various environmental conditions, and performance as related to age, nutrition, and state of health. Energy cost and efficiency will be related to different kinds of activities in industry. Special attention will be given to respiratory effects of atmospheric contamination and the assessment of respiratory function.

### **Physiology 20. Research in Physiology**

Properly qualified students are given opportunities to work in the laboratory provided they can devote an acceptable amount of time to such work.

### **Physiology 40d. Toxicology of Air Contaminants**

Lectures and demonstrations. Two hours a week, time to be arranged, fourth period. Dr. AMDUR and Dr. WHITTENBERGER.

Credit 1 unit.

The aim of this course is to develop an understanding of the toxicology of materials entering the body through the respiratory tract. Subject matter will include experimental methods of exposures to gases and aerosols, statistical treatment and interpretation of data, the principles of physiology governing absorption of inhaled material, and the retention of particulate matter by the respiratory system. The toxicity of specific compounds and classes of compounds will be discussed.

## HARVARD UNIVERSITY

### DEPARTMENT OF PUBLIC HEALTH PRACTICE

HUGH R. LEAVELL, S.B., M.D., DR.P.H., *Professor of Public Health Practice and Head of the Department*

FRANZ GOLDMANN, M.D., *Associate Professor of Medical Care*

LEONID S. SNEGIREFF, M.D., DR.P.H., *Associate Professor of Cancer Control*

GERALD CAPLAN, B.S.C., M.B., CH.B., M.D., *Associate Professor of Mental Health*

BENJAMIN D. PAUL, A.B., PH.D., *Associate Professor of Social Anthropology*

HELEN L. ROBERTS, A.B., M.D., M.P.H., *Lecturer on Public Health Practice*

OZZIE G. SIMMONS, S.B., PH.D., *Lecturer on Social Anthropology*

ALFRED L. FRECHETTE, M.D., M.P.H., *Assistant Professor of Public Health Practice and Director, Health, Hospital and Medical Care Division, United Community Services of Metropolitan Boston*

MARGARET L. VARLEY, S.B., M.P.H., *Assistant Professor of Public Health Nursing*

WARREN T. VAUGHAN, JR., S.B., M.D., *Assistant Professor of Mental Health and Director, Division of Mental Hygiene, Massachusetts Department of Mental Health*

ROY F. FEEMSTER, A.B., M.D., DR.P.H., *Assistant Professor of Public Health Practice and Director, Division of Communicable Diseases, Department of Public Health of Massachusetts*

SOL LEVINE, PH.D., *Assistant Professor of Social Psychology*

JOHN H. CAULEY, M.D., M.P.H., *Lecturer on Public Health Practice and Commissioner of Public Health, City of Boston Health Department*

HARRY T. PHILLIPS, M.B., CH.B., D.P.H., M.D., *Lecturer on Public Health Practice*

EDWIN F. DAILY, M.D., *Visiting Lecturer on Medical Care*

HOWARD A. RUSK, A.B., M.D., S.D. (hon.), *Visiting Lecturer on Public Health Practice*

DEAN W. ROBERTS, A.B., M.D., M.P.H., *Visiting Lecturer on Medical Care*

GEORGE ROSEN, S.B., M.D., PH.D., M.P.H., *Visiting Lecturer on Medical Care*

ROBERT H. HAMLIN, A.B., M.D., M.P.H., LL.B., *Visiting Lecturer on Public Health Law*

LEONARD A. SCHEELE, A.B., M.D., LL.D., S.D. (hon.), *Visiting Lecturer on Public Health Practice*

AVEDIS DONABEDIAN, A.B., M.D., M.P.H., *Visiting Lecturer on Medical Care*

HERBERT L. LOMBARD, A.B., M.D., M.P.H., *Instructor in Public Health Practice and Director, Division of Cancer and Other Chronic Diseases, Department of Public Health of Massachusetts*

ROBERT E. ARCHIBALD, M.D., M.P.H., *Instructor in Public Health Practice and Deputy Commissioner, Department of Public Health of Massachusetts*

## SCHOOL OF PUBLIC HEALTH

- FRANKLYN B. AMOS, M.D., M.P.H., *Instructor in Public Health Practice*
- CLARENCE I. STERLING, S.B., *Instructor in Public Health Practice and Deputy Commissioner of Health, Department of Public Health of Massachusetts*
- KENNETH I. E. MACLEOD, M.B., CH.B., M.P.H., *Instructor in Public Health Practice*
- ELIZABETH B. HAGER, A.B., N.M., A.M., *Instructor in Public Health Nursing*
- OLIVE M. LOMBARD, B.S.C., S.M. IN HYG., *Instructor in Public Health Practice*
- DONALD C. KLEIN, A.B., PH.D., *Instructor in Mental Health*
- ARTHUR C. K. HALLOCK, A.B., *Instructor in Mental Health*
- EDWARD A. MASON, A.B., M.D., *Instructor in Mental Health*
- BELLENDEN R. HUTCHESON, B.S.C., M.B., M.D., *Instructor in Mental Health*
- SIDNEY S. LEE, S.B., M.D., DR.P.H., *Instructor in Public Health Practice and Assistant Director, Beth Israel Hospital*
- PEARL P. ROSENBERG, PH.D., *Instructor in Mental Health*
- A. PAUL HARE, S.B., PH.D., *Instructor in Mental Health*
- BESSIE S. DANA, A.B., S.S.M., *Instructor in Public Health Social Work*
- DAVID W. BARKLEY, PH.D., M.P.A., *Instructor in Public Health Practice*
- GEORGE W. DANA, A.B., M.D., *Instructor in Medical Care*
- JACOB I. HURWITZ, S.B., S.M., PH.D., *Instructor in Mental Health*
- AUGUSTA F. LAW, A.B., M.D., M.P.H., *Instructor in Public Health Practice*
- CHARLOTTE E. OWENS, S.B., M.P.H., *Instructor in Mental Health*
- ELEANOR H. SMITH, A.B., M.D., M.P.H., *Instructor in Public Health Practice*
- LEON J. TAUBENHAUS, A.B., M.D., M.P.H., *Instructor in Public Health Practice*
- MARJORIE A. C. YOUNG, S.B., M.ED., DR.P.H., *Instructor in Health Education*
- MARK ZBOROWSKI, B.S., *Research Associate in Social Anthropology*
- NAOMI C. TURNER, A.B., ED.M., *Research Associate in Dental Public Health*
- BARBARA AYRES, A.M., *Research Associate in Mental Health*
- LEOTA L. JANKE, PH.D., *Research Associate in Psychology*
- HERBERT NABOISEK, S.B., A.M., PH.D., *Research Associate in Psychology*
- JOHN G. MCCORMICK, S.M., *Research Associate in Health Education*
- RALPH R. NOTMAN, B.A., M.D., C.M., *Research Associate in Mental Health*
- DOROTHY M. MATHEWS, A.B., S.S.M., *Research Associate in Social Work*
- HILDA ROSENBLUM KAHNE, PH.D., *Research Associate in Economics*
- WILLIAM S. FLASH, A.B., M.P.A., PH.D., *Research Associate in Public Administration* (Absent 1957-58)
- HOWARD E. FREEMAN, PH.D., *Research Associate in Sociology*
- MAURICE B. HAMOVITCH, PH.D., *Research Associate in Mental Health*

## HARVARD UNIVERSITY

FRANCES M. HEALD, A.B., S.M., S.M. IN HYG., *Assistant in Public Health Social Work*

LILLY C. MOBERG, *Assistant in Public Health Nursing*

RAYMOND F. WAGNER, S.B., S.M., *Assistant in Public Health Practice*

GRACE WYSHAK, A.B., S.M. IN HYG., *Assistant in Public Health Practice*

EDNA L. SKELLY, S.B., A.M., *Assistant in Public Health Nursing*

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ERICH LINDEMANN, PH.D., M.D., *Professor of Psychiatry*

SHIELDS WARREN, A.B., M.D., S.D. (hon.), LL.D., *Professor of Pathology at the New England Deaconess Hospital*

SIDNEY FARBER, S.B., M.D., *Professor of Pathology at The Children's Hospital*

DEAN A. CLARK, B.A., B.SC., M.D., *Clinical Professor of Preventive Medicine and General Director of the Massachusetts General Hospital*

PAUL K. LOSCH, D.D.S., *Associate Professor of Pediatric Dentistry at the Children's Hospital*

JAMES M. DUNNING, A.B., D.D.S., M.P.H., *Lecturer on Public Health Dentistry, Harvard School of Dental Medicine*

CECIL G. SHEPS, M.D., M.P.H., *Lecturer on Preventive Medicine, Harvard Medical School, and Executive Director, Beth Israel Hospital*

WILLIAM J. CURRAN, LL.M., *Lecturer on Law, Department of Legal Medicine, Harvard Medical School (Professor of Legal Medicine, Director, Law-Medicine Research Institute, Boston University)*

The Department of Public Health Practice is working toward specific objectives in the three broad areas of education, research and administration. In education the Department seeks:

(a) To develop leaders in administration who will be prepared to study objectively and deal effectively with the changing administrative problems of the future. Such leaders should be competent to organize and administer programs for service, education, research or a combination of these activities.

(b) To educate leaders in the content and administration of special fields of public health for which the Department has particular responsibility. At present these include the following fields: chronic disease control and gerontology, public health dentistry, health education, medical care administration, mental health, public health law, public health nursing, public health social work and rehabilitation.

(c) To provide opportunities for specialists majoring in other departments of the School to develop an appreciation of the relationships between their own special field, public health as a whole, and the communities in which they will work.

## SCHOOL OF PUBLIC HEALTH

(d) To provide a background in the concepts and research methods of the behavioral sciences for those students whose future activities will require their close cooperation with experts in the various behavioral sciences.

In research the Department seeks to stimulate and carry on research in the special fields of public health for which the Department is responsible. This includes the areas in which health and the behavioral sciences have important interfaces, as well as comparative studies of administrative problems and methods in different parts of the world, with the purpose of finding principles of broad applicability.

It is the Department's objective to provide consultation and community service to the extent that is consistent with the development and maintenance of a strong educational and research program.

### **Public Health Practice 1a, b. Principles of Public Health Practice**

Seminars and conferences. *Wednesdays and Fridays, 9-10, first period; Mondays and Fridays, 9-10 and Wednesdays, 9-11, second period.* Dr. LEAVELL and associates.

Credit 3 units.

An introduction to public health practice in which the principles of understanding people, of administrative organization, personnel management, financing of health services and public health law are presented as the basis of public health administration.

Special consideration is given to the work of the various members of the public health team, and to the types and inter-relationships of the official and voluntary agencies in which they work.

Maternal and child services involve many members of the health team, and they are needed in all parts of the world. Therefore, examples of such services receive special emphasis.

### **Public Health Practice 2a, b. Organization of Medical Care**

Lectures and discussions. *Wednesdays, 11-1, first period; Tuesdays, 11-1, second period.*

Credit 2 units.

An orientation course on the principles and problems of adapting medicine and the related sciences to social needs and uses, with special emphasis on the policies followed in developing medical-care programs under the auspices of public and voluntary agencies. Discussion of the resources in medical and related personnel, and in hospitals, clinics and custodial institutions; of the utilization of existing services and the cost of medical care; and of the basic methods of organizing and paying for professional and hospital services. Description of tax-supported medical-care programs administered by local, state and federal agencies and of voluntary prepayment plans of various types.

## HARVARD UNIVERSITY

### **Public Health Practice 3b. Psychosocial Problems**

Lectures and seminars. *Wednesdays, 2-4, second period.* Dr. CAPLAN and associates.

Credit 1 unit.

This course is concerned with the study of abnormal behavior resulting in social problems and with the mechanisms which produce abnormal mental reactions. It includes a series of discussions dealing with factors in individual, physical, and psychological development; family relationships; and the social structure of the community, which contribute to the causation of psychological disorder.

### **Public Health Practice 4a. Control of Cancer and Other Chronic Diseases**

Lectures and discussions. *Tuesdays and Thursdays, 2-4, first period.* Dr. SNEGIREFF.

Credit 2 units.

Cancer control is discussed from the viewpoint of the administrator. Authorities in the various aspects of the cancer control program discuss specific phases of the problem. Discussion periods are arranged to supplement lectures and to give the administrator a balanced view of the cancer field in relation to other chronic diseases.

### **Public Health Practice 5a, b, c, d. Community Health Education**

Seminars. *Wednesdays, 11-1, first period; Tuesdays, 11-1, second period;* time to be arranged, third and fourth periods. Dr. YOUNG.

Credit 6 units.

Comprehensive discussion of the methods and materials of public health education. Includes also a consideration of social science concepts relevant to health education.

Intended especially for students with a major interest in health education.

### **Public Health Practice 6c, d. School Health Education**

Seminars. Two hours a week, time to be arranged, during the third and fourth periods. Dr. YOUNG and associates.

Credit 2 units.

Study of the educational aspects of the school health program and the place of the schools in community health education.

Intended especially for students with a major interest in health education.

### **Public Health Practice 7c, d. Dental Public Health Practice**

Conferences, seminars, and field study. Time and credit to be arranged. Dr. DUNNING and associates.

## SCHOOL OF PUBLIC HEALTH

This course is designed particularly for dentists.

Emphasis is laid on the application of such sciences as epidemiology and biostatistics to dental problems and upon public health administration in the dental field.

Opportunities for clinical experience are available at the Harvard School of Dental Medicine under certain circumstances.

### **Public Health Practice 8c, d. Legal Problems of Organized Health Programs**

Seminar. Two hours a week, time to be arranged, during the third and fourth periods. Mr. CURRAN.

Credit 2 units.

The Seminar is primarily designed for those who are or who may become administrators and policy-makers including health officers, nurse supervisors, medical care personnel, sanitary engineers, or other similar personnel, in public or private agencies. Seminars will include discussions on: (a) utilization of the law in implementing health programs; (b) the liability of health personnel and health organizations in the operation of their programs; (c) the development and comparison of legal and medical standards of practice, particularly how these standards on a legal basis may be used to increase and maintain the quality of health programs; (d) the theory and operation of grants-in-aid; (e) the preparation and presentation of medical evidence for hearings, court procedures, etc.; (f) the legal problems of disease control, and (g) various legal and administrative forms of health practice; (h) problems in family services, such as marriage, divorce and adoption laws.

### **Public Health Practice 9c, d. Mental Health Problems**

Seminars. *Tuesdays, 2-4, third and fourth periods.* Dr. CAPLAN and associates.

Credit 2 units.

Mental health problems, such as control of delinquency, mental disease, psychoneurosis, and psychosomatic disorders are reviewed, both from the point of view of the clinic and of community resources. An effort then is made to outline a program for community mental health, including the problems involved in the efforts of public agencies and voluntary groups.

Prerequisite: Public Health Practice 3b.

### **Public Health Practice 10c, d. Public Health Administration, Health Education, Public Health Nursing and Social Work in Health Agencies**

Seminars and field study, *Mondays, Wednesdays and Fridays, 2-4, third and fourth periods.* Dr. LEAVELL and associates.

Credit 6 units.

## HARVARD UNIVERSITY

Practical application of public health practice principles is developed through problem centered seminars. Each student is assigned to a small group to study a broad and current public health problem, and works with a seminar leader and various specialists. Particular attention is given to the health education role of each member of the team, nursing and social work activities. The necessity for teamwork is demonstrated. The broad aspects of public health administration and reports on each problem are discussed critically by the class in general sessions.

Public Health Practice 31c, d should be taken in connection with this course to provide opportunities for field study.

Prerequisite: Public Health Practice 1a, b.

### **Public Health Practice 11c, d. Administration of Medical-Care Programs**

Seminars, field observations, and exercises. *Mondays and Wednesdays, 9-11, third period; Mondays, 9-11, and Wednesdays, 9-12, fourth period.*

Credit 4.5 units.

An advanced seminar enlarging on the basic subject matter presented in Public Health Practice 2a, b, Organization of Medical Care. Discussion of the basic principles and problems of sound administrative organization of medical-care programs. Study of the administrative practices actually followed by public agencies in charge of tax-supported services and by voluntary agencies administering prepayment plans for hospital care, physicians' service, or both. Discussion of the technics of surveying and appraising medical-care needs and medical-care programs, including consideration of proper employment of statistical methodology. Analysis of the experience gained in the operation of various types of tax-supported and insurance plans. Visits to selected medical-care facilities and to administrative agencies, public and voluntary. Supervised studies of typical organizations.

Prerequisite: Public Health Practice 2a, b.

### **Public Health Practice 20. Special Assignments**

Advanced students are offered the opportunity to undertake studies in the practice of organized health services. The student must have completed Biostatistics 1a, b and Public Health Practice 1a, b before registering for this work. Time and credit arranged on an individual basis. Examples of types of assignments follow:

#### **Cancer Control Practice**

Dr. SNEGIREFF

Primarily for physicians. Advanced problems in administration of cancer control programs of official and voluntary health agencies at national, state, and community levels, and the development of special studies di-

## SCHOOL OF PUBLIC HEALTH

rected toward educational methodology in teaching cancer etiology and control measures.

Observation and field study in cancer clinics and related facilities.

Prerequisite: Public Health Practice 4a.

### **Family and Community Case Studies**

Eight sessions, one half day a week, in the second, third or fourth periods. Dr. PHILLIPS and associates.

Credit 1 unit in each period.

Through a study of a family's social and health needs, a limited number of students, under guidance, will have an opportunity to interview a family and review reports of social and health agencies which have provided services to the family. The purpose of the course is to determine the family's problems and the degree to which the community's services of health and welfare were effective in helping the family to meet these problems. Gaps, duplications, and problems in coordination of services will be clarified and suggested ways of meeting the needs proposed.

### **Veterinary Public Health Practice**

Primarily for veterinarians. Individual work to be arranged.

### **Studies of Medical Care Agencies**

Prerequisite: Public Health Practice 2a,b.

### **Comparative Health Administration**

Time and credit to be arranged, in the third and fourth periods. Dr. LEAVELL and associates.

The purpose will be to assess and apply research methods in comparative health administration. An attempt will be made to frame and evaluate research designs in finding common methods, criteria and/or principles of health administration between varied countries and cultures.

### **Public Health Practice 30c, d. Assignments to Field Agencies**

*January 27-February 1, March 31-April 5.*

Credit 1 unit for each week.

Assignments for continuous periods to health departments or voluntary health agencies (1) To observe activities of the various subdivisions, work of the administrator or other specialized administrative personnel, and community relationships, or (2) To make group surveys or studies of community health services under the supervision of staff members of the Department of Public Health Practice.

Offered in conjunction with Public Health Practice 4a, 9c, d, 10c, d, and 11c, d.

## HARVARD UNIVERSITY

### **Public Health Practice 31c, d. Field Observation**

*Thursdays, 2-5, third and fourth periods.* Credit to be arranged.

These periods are designed to provide opportunity for field observations, individual field studies, and seminar discussions in health service administration, public health nursing, social work and health education. Students majoring in Public Health Practice or those electing either Public Health Practice 10c, d or 11c, d are required to register for this course, and may earn one or more units of credit.

### **Public Health Practice 40c, d. Group Dynamics**

Lectures and seminars. Two hours a week, time to be arranged, during the third and fourth periods. Dr. PEARL ROSENBERG.

Credit 2 units.

The study of group dynamics is designed to increase awareness of the human relationships occurring within a group and thereby to improve the efficiency of the health worker. Lectures and informal group discussions, which constitute the laboratory part of the course, give the student an opportunity to become conscious of such concepts as group process, group cohesion, productivity, leadership, group structure and communication.

### **Public Health Practice 41c, d. Gerontology**

Seminars. Two hours a week, time to be arranged, during the third and fourth periods. Staffs of the Departments participating.

Credit 2 units.

This series of seminars offers an opportunity for detailed study of gerontological problems briefly touched upon in other courses. Its general theme is the social and biological challenge of the aging population. Discussions will cover the biological changes in old age, the emotional problems of the aged, the problems of the older worker in industry and retirement, the socio-economic factors in old age, and the control of selected diseases of long duration. At least four sessions will be devoted to the principles of planning a community program for the aged.

### **Public Health Practice 42c. Government and Public Social Policy**

Seminars. Two hours a week, time to be arranged, third period. Miss RICE and guest leaders.

Credit 1 unit.

The goal of the seminar is to explore the general socio-governmental context within which public health practitioners must work and lead. From the point of view of public health as a specific social concern the general context of governmental scope and process will be explored, roughly according to the

## SCHOOL OF PUBLIC HEALTH

theme: from social force to public institutional environment to administrative process and policy.

### **Public Health Practice 43c. Rehabilitation**

Seminars. *Tuesdays, 9-11, third period.* Miss RICE and associates.

Credit 1 unit.

This course is designed to consider the philosophy of rehabilitation, its relation to income maintenance, the historical development and provisions of the federal rehabilitation program, and the role of the rehabilitation counselor. The developing programs of service, research, and training under public and private auspices are discussed as well as the application of rehabilitation services to particular groups, such as the homebound, mentally ill, the physically handicapped, and the blind. The problems of employment are reviewed. The multidiscipline study and treatment of rehabilitees is demonstrated through a staff conference in a rehabilitation center. Field trips are available.

### **Public Health Practice 44c, d. Principles of Consultation and Supervision**

Seminars. Two hours a week, time to be arranged, during the third and fourth periods. Mrs. DANA and Miss RICE.

Credit 2 units.

The first half of the course is concerned with the development of the basic principles of consultation through 1) an examination of the expectations of the consultee and the practices of the consultant from the point of view of the various health disciplines and 2) a consideration of the consultative methods employed in problem solving, staff development, and program planning in the health and welfare fields.

The second half of the course is devoted to the discussion of supervision in terms of objectives, methods and principles. The case method is employed to illustrate the application of supervisory principles to actual learning situations in the various fields of public health. The differences between supervision and consultation are evaluated.

### **Public Health Practice 45a, b, c, d. Social Work in Public Health**

Seminars. Two hours a week, time to be arranged, throughout the year. Miss RICE and visiting lecturers.

Credit 1 unit in each period.

These seminars are arranged for social workers who are full-time students in the School. Discussions will include the functions of the social worker in governmental and voluntary health programs at the local, state, federal and international level; the methods of organization and administration of social

## HARVARD UNIVERSITY

work programs; analysis of case material; study of social work in the newer programs in public health and in research; the relationship of social work programs in health departments to other community services of health, education and welfare.

A comprehensive paper on some aspects of social work in health programs is required at the end of the year. Selected field visits are also required.

### DEPARTMENT OF SANITARY ENGINEERING

GORDON M. FAIR, S.B., S.M. (hon.), DR. ING. (hon.), *Abbott and James Lawrence Professor of Engineering, Gordon McKay Professor of Sanitary Engineering and Head of the Department*

HAROLD A. THOMAS, JR., S.D., *Gordon McKay Professor of Civil and Sanitary Engineering*

J. CARRELL MORRIS, S.B., PH.D., *Associate Professor of Sanitary Chemistry*

RALPH E. WHEELER, A.B., M.D., DR.P.H., *Lecturer on Sanitary Biology*

LEON A. BRADLEY, S.B., PH.D., *Lecturer on Sanitary Engineering*

WILFRED B. KRABEK, S.M., *Instructor in Sanitary Engineering*

### Sanitary Engineering 1a. Principles of Sanitation

Lectures and demonstrations. *Tuesdays and Thursdays, 10-12, Saturdays, 10-12, October 5, 19, November 2, 16, first period.* Professors FAIR and THOMAS, Associate Professor MORRIS and Dr. BRADLEY.

Credit 2.5 units.

This course is entitled Principles of Sanitation, and endeavors to live up to the name by emphasizing the broad engineering principles useful in environmental control. An attempt is made to present these principles in a manner comprehensible to students who have no engineering background. Technics of control are discussed, but are presented as illustrations of principle, not as rule-of-thumb procedure which the student is expected to learn by rote. A few field visits are made to show the application of principles in practice.

The ultimate objective of the course is not the conversion of the student into a sanitation expert, ready to design water works, or prescribe pasteurization systems, but rather to prepare him to advise, to cooperate with, and to understand the people who are to do the job. It also acquaints him with the nature and extent of the problem, with what can be and has been accomplished by sanitation, and with what may be expected to be accomplished in the future.

The topics considered include: water supply and purification; sewerage and

## SCHOOL OF PUBLIC HEALTH

sewage treatment; refuse collection and disposal; and food, milk and shellfish sanitation.

### **Sanitary Engineering 2a, b. Sanitary Bacteriology**

Lectures and laboratory. *Tuesdays, Thursdays and Saturdays, 8-9 and Wednesdays, 1-5, first and second periods.* Dr. WHEELER.

Credit 5 units.

Morphology, physiology, and cultivation of bacteria. Quantitative bacteriology. Effect of physical and chemical agents on bacteria. Mechanisms of antibacterial activity. Differentiation of Enterobacteriaceae. Immunity. Bacteriology and sanitary control of air, water, and swimming pools. Soil and sewage microbiology. Bacteriology and sanitary control of milk and milk products, foods and eating establishments, and shellfish. Viruses.

This is the same course as Engineering 274a.

### **Sanitary Engineering 3c, d. Sanitary Parasitology**

Lectures and laboratory. Time to be arranged, during third and fourth periods. Dr. WHEELER.

Credit 5 units.

Parasitology and control of diseases caused by zoological parasites. Arthropods of public health importance and their control. Rodents and rodent control.

This is the same course as Engineering 274b.

The following courses of instruction offered in the Division of Engineering and Applied Physics of the Graduate School of Arts and Sciences are open to properly qualified students:

Engineering 270a. Hydrology and Hydraulics of Water Supply and Waste-Water Disposal. Professor FAIR.

Engineering 270b. Water Purification and Waste-Water Treatment. Professor THOMAS and Associate Professor MORRIS.

Engineering 271. Experimental Water Purification and Waste-Water Treatment. Professor THOMAS and Assistant Professor STUMM.

Engineering 272. Sanitary Chemistry. Assistant Professor STUMM.

Engineering 273. Stream Hydrology. Professor THOMAS.

Engineering 275. Seminar on Industrial Water Supply and Waste-Water Disposal. Mr. MOORE.

Engineering 276. Advanced Techniques in Water and Sewage Analysis. Associate Professor MORRIS.

## HARVARD UNIVERSITY

### DEPARTMENT OF TROPICAL PUBLIC HEALTH

THOMAS H. WELLER, A.B., S.M., M.D., LL.D., *Richard Pearson Strong Professor of Tropical Public Health and Head of the Department*

GEORGE C. SHATTUCK, A.B., M.D., A.M. (hon.), *Clinical Professor of Tropical Medicine, Emeritus*

DONALD L. AUGUSTINE, S.B., S.D., S.D. (hon.), A.M. (hon.), *Professor of Tropical Public Health*

FRANKLIN A. NEVA, S.B., M.D., *Assistant Professor of Tropical Public Health*

ELI CHERNIN, S.B., A.M., S.D., *Assistant Professor of Tropical Public Health*

PAUL F. RUSSELL, A.B., M.D., M.P.H., *Visiting Lecturer on Tropical Public Health*

EDWARD I. SALISBURY, M.D., *Visiting Lecturer on Tropical Public Health*

FRED L. SOPER, A.B., S.M., M.D., DR.P.H., *Visiting Lecturer on Tropical Public Health*

GEORGE M. SAUNDERS, A.B., M.D., *Visiting Lecturer on Tropical Public Health*

WILLARD H. WRIGHT, D.V.M., S.M., PH.D., *Visiting Lecturer on Tropical Public Health*

JACQUES M. MAY, M.D., *Visiting Lecturer on Tropical Public Health*

SAMUEL W. SIMMONS, S.B., PH.D., *Visiting Lecturer on Tropical Public Health*

GEORGE R. COATNEY, PH.D., *Visiting Lecturer on Tropical Public Health*

HARRY MOST, S.B., M.D., D.T.M. & H., D.M.S., *Visiting Lecturer on Tropical Public Health*

DONALD B. McMULLEN, S.D., *Visiting Lecturer on Tropical Public Health*

CHIA-TUNG PAN, B.S.C., M.D., M.P.H., *Instructor in Tropical Public Health*

EDWARD H. MICHELSON, S.M., PH.D., *Instructor in Tropical Public Health*

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JOHN H. HANKS, S.B., PH.D., *Lecturer on Bacteriology and Immunology*

Students wishing to concentrate in Tropical Public Health must possess a knowledge of pathology, in addition to the basic course requirements for admission as degree candidates.

#### **Tropical Public Health 1a, b. The Ecology and Prevention of Tropical Diseases**

Lectures, laboratory exercises, and demonstrations. *Tuesdays and Fridays, 12-1, first period; Thursdays, 12-1, and Fridays, 10-11, second period; labora-*

## SCHOOL OF PUBLIC HEALTH

*tory, Fridays, 2-5, in both periods.* Dr. WELLER, Dr. AUGUSTINE, Dr. NEVA, Dr. CHERNIN and associates.

Credit 3.5 units.

This course deals with the important health hazards of the poorly sanitated regions of the world. It is concerned with the factors which combine to exert a deleterious effect on human welfare in underdeveloped areas. Thus, consideration is given to climate, food supply, social and economic conditions, as they relate to the serious disease problems of the tropics. The clinical aspects of tropical medicine are not neglected, but emphasis is placed on diagnostic procedures for specific diseases and on methods for their prevention or control. Consideration is given to recent advances in our knowledge of the insect-borne diseases, including their distribution and incidence, host-parasite relations, and the available methods of protecting both the individual and the community.

Admission to this course is contingent upon an adequate background in the pre-clinical medical sciences, especially histology and pathology. Students who lack training in these disciplines will be admitted only subject to the approval of the Head of the Department.

### **Tropical Public Health 2d. Problems and Programs in Tropical Health**

Lectures and conferences. *Wednesdays, 11-1, fourth period.* Staff of the Department.

Credit 1 unit.

This course is designed to acquaint the students with existing national and international health programs in tropical countries. Formal presentation of subjects dealing with health conditions and problems in representative tropical regions will be made by visiting lecturers, each a distinguished leader in the field. These will be followed by informal conferences in which the students will be expected to participate. Attention is given to the development of effective tropical health programs through application of technics adapted to the needs of different peoples and climates. Registration is open to all students.

### **Tropical Public Health 5c, d. Seminar**

Seminars and discussions. One hour session twice a month throughout the third and fourth periods. Time to be arranged. Staff of the Department.

Credit .5 unit.

Students particularly interested in tropical health will meet with staff members for the presentation and discussion of current literature and original investigations. Admission for credit is subject to the approval of the Head of the Department.

## HARVARD UNIVERSITY

### **Tropical Public Health 6c. Parasitic Infections of Man**

Lectures, laboratory exercises, and demonstrations. *Tuesdays, 8:30-12:30, and Fridays, 2-5, February and March.* Dr. WELLER, Dr. AUGUSTINE, Dr. NEVA, Dr. CHERNIN and associates.

Credit 1.5 units.

This course is designed primarily for students in the School of Medicine. It is open, however, to a limited number of students registered in the School of Public Health. The important helminth and protozoan parasites of man are considered with reference to their geographic distribution, identification, mode of transmission, pathogenesis, immune reactions, and methods for prevention and control. Clinical aspects and chemotherapy of parasitic diseases are discussed. Emphasis is given to methods of laboratory diagnosis. Arthropods of parasitologic importance are briefly surveyed.

### **Tropical Public Health 20. Research**

Opportunity is offered to qualified students to work on problems under the supervision of the staff. A number of parasites of medical importance are maintained for studies on metabolism, host-parasite relations, and chemotherapy. Arrangements may be made for students to work in laboratories of hospitals situated within the tropics or to cooperate in organized field investigations.

### **Tropical Public Health 40d. Laboratory Technics**

Conferences and laboratory. Dr. PAN.

Time and credit to be arranged.

Students are offered the opportunity to learn the technics of handling parasitic agents in culture or in laboratory animals, and to gain experience in the use of procedures employed in routine diagnostic work.

Enrollment limited and subject to the approval of the instructor.

Section IV  
General Information



## GENERAL INFORMATION

### REGISTRATION

Registration in the School of Public Health for the academic year 1957-58 takes place from Monday, September 16 to Friday, September 20. A departmental advisor is assigned to each student to consult with him about his selection of courses and to advise him throughout the year. Adequate time during registration week should be allowed by the student for discussion of his program with his advisor and the Dean or the Assistant Deans of the School, who must approve each schedule.

### FOREIGN STUDENTS

During registration week each student who comes from outside the United States will have a conference with the Faculty Advisor for Foreign Students to discuss his particular needs and interests. The Faculty Advisor for Foreign Students and also the staff of the Dean's Office are available for consultation with students throughout the year.

All students who are not citizens of the United States will be referred during registration to the Counsellor for Foreign Students, 24 Quincy Street, Cambridge, where they will present a statement of admission, show their passports, and fill out a Student Registration form. They will then receive a card for presentation at registration, showing they have been cleared by the office of the Counsellor for Foreign Students.

### VETERANS

Information about the procedure to be followed by students who are eligible for educational benefits under either of the G.I. Bills or the Rehabilitation Bill, may be secured from the Dean's Office or from the Veterans Affairs Section of the Comptroller's Office, Lehman Hall, Cambridge.

## HARVARD UNIVERSITY

### FEES AND EXPENSES

The fee for tuition is \$1,150 for the academic year for full-time students. Each candidate for a degree must have one year of residence at the School at full tuition. Degree candidates enrolled for more than one year may pay tuition at a reduced rate, depending on the amount of time spent at the School, as follows:

#### Candidates for Master's Degrees:

1. Second year at half tuition rate if the student is studying at the School full-time; in proportion for less than full-time, but not less than \$100 per term.
2. Second year, if the student is away from the School and working on a prescribed program of field training, a guidance fee of \$100 per term.

#### Candidates for Doctoral Degrees:

1. One year of residence and full tuition beyond the Master's degree or equivalent.
2. Second year at half-rate tuition if the student is continuing studies at the School full-time; in proportion for less than full-time, but not less than \$100 per term.
3. Second year, if the student is away from the School and working on his thesis, a guidance fee of \$100 per term.
4. After the second year, no tuition fee unless the student is working at the School; in such cases the tuition is \$100 per term.

#### Part-time Special Students

The tuition fee for part-time special students varies according to the courses taken and is based on the proportion of the annual fee for instruction which the credit units for each course bear to the total number of credits necessary for the degree of Master of Public Health, plus \$5.00 for each course. For example, a part-time student taking a course with a credit unit value of 2 would pay a tuition fee of \$62.50; a student taking a course with a credit unit value of 4 would pay \$120.00. If a part-time student, who has paid tuition at

## SCHOOL OF PUBLIC HEALTH

the course rate, becomes a degree candidate, the \$5.00 course fees are not included as part of the tuition required for the degree.

### Health Fee

Each full-time student will be charged a fee of \$61.50 per year for health and medical care. Part-time students working at the *rate* of substantially half-time or less and living at home may be excused from the payment of such fee at any time within two weeks after their registration, upon the recommendation of the Dean.

### Payment of Fees

Bills for tuition and fees will be issued and payable as follows:

#### *Issued Payable*

At registration	Oct. 25	{ $\frac{1}{4}$ of the tuition for the year $\frac{1}{2}$ medical and hospital fee for the year
Nov. 20	Dec. 10	{ $\frac{1}{4}$ of the tuition for the year board through October 31 miscellaneous charges
Jan. 20	Feb. 10	{ $\frac{1}{4}$ of the tuition for the year $\frac{1}{2}$ medical and hospital fee for the year board through December 31 miscellaneous charges
April 21	May 9	{ $\frac{1}{4}$ of the tuition for the year board through March 31 miscellaneous charges
June 4 *	June 11	{ board to the end of the year miscellaneous charges
June 30	July 15	{ board to the end of the year miscellaneous charges

Students who are candidates for degrees must have paid all dues to the University at least one day before the day upon which the degrees are to be voted. A student who leaves during the year is charged

\* Applies only to candidates for degrees.

## HARVARD UNIVERSITY

to the end of the tuition period in which he leaves provided before that time he gives the Dean notice in writing of his withdrawal; otherwise he is charged to the end of the tuition period in which such notice is given.

A student who leaves the University for any reason whatever must pay all charges against him immediately upon receipt of a bill from the Bursar. Every student will be held responsible for the payment of fees until he has notified the Dean of his intention to withdraw from the School.

All term bills will be sent to the student at his local address unless the Bursar is requested in writing to send them elsewhere.

*Any student whose indebtedness to the University remains unpaid on the date fixed for payment is deprived of the privileges of the University until he is reinstated.* Reinstatement is obtained only by consent of the Dean of the School in which the student is enrolled, after payment of all indebtedness, and a fine of \$10 for late payment.

### Bond Requirement

Upon entrance to the School every student is required to file with the Bursar a bond in the sum of \$500 as security for payment of University bills. The bond must be signed by two bondsmen, both of whom must be citizens of the United States, or by a surety company duly qualified to do business in Massachusetts. No officer or student of the University will be accepted as a bondsman and in no case will more than one parent be accepted. In lieu of the bond a student may deposit with the Bursar \$500 in United States Treasury coupon-bearing bonds, or \$500 in cash, which will bear no interest. Blank forms of bonds may be obtained at the Dean's office or from the Bursar.

## STUDENT HEALTH SERVICE

Under the University Health and Insurance Plan students at the School receive medical care in the Harvard Medical Center Clinic at the Peter Bent Brigham Hospital and insurance toward hospital

## SCHOOL OF PUBLIC HEALTH

expenses, at a fee of \$61.50 per year. All full-time students are required to pay this fee. The hospital insurance runs for a period of twelve months and covers hospitalization both in Boston and elsewhere.

Officers of the armed services, or those required to carry hospital insurance by governmental agencies may request exemption from the insurance portion of the fee but will be required to pay the clinic fee in the amount of \$42.50. Exemption from the insurance will be granted only after the student submits evidence that he has satisfactory coverage for hospital expenses.

Dependents of students may be included in the insurance aspects of the plan, if the student so elects; the rates are \$26 for wives or husbands and \$23.75 for one or more children, for twelve months.

Every new student paying the medical fee is required to undergo a complete medical examination, by appointment, shortly after admission to the School.

Evidence of recent successful vaccination against smallpox is required for entrance to Harvard University and a certification form for this purpose is sent to each student who is accepted for admission.

Any illness necessitating absence from classes should be reported to the Student Health Office by the student, or an attending physician, and to the Information Office at the School.

In order to realize maximum benefit from the opportunities provided by the academic program of the School, students must be in excellent physical and mental health. Prospective students are urged to undergo a thorough examination to satisfy themselves of their fitness before making arrangements to enter the School.

## HOUSING

There are no dormitories for students of the School of Public Health but they may get their meals at Vanderbilt Hall dining room, the Medical School dormitory. Single students usually can find furnished rooms or apartments in the vicinity of the School, or in nearby residential sections such as Brookline. Houses or apart-

## HARVARD UNIVERSITY

ments for families are more difficult to obtain and therefore married students who plan to bring their families are advised to arrive in Boston at least three weeks in advance of the opening of School, in order to have time to secure living quarters. The School is glad to be of assistance by supplying information about available places, but the responsibility for securing housing rests with the students.

### EMPLOYMENT

Generally it is not advisable for a student to seek employment as a means of financing his training because the course of study at the School is an intensive, full-time program. If the wife of a student has secretarial or technical skills and wishes to obtain temporary employment, she may consult the Harvard Medical Center Personnel Office in Building A of the Medical School after getting settled in Boston. Wives of foreign students who wish to work in Boston should indicate this when obtaining their visas for the United States.

### SCHOLARSHIPS AND FELLOWSHIPS

The Harvard School of Public Health has a limited number of scholarships which are granted annually to individuals of high professional promise, with awards ranging from part tuition to tuition plus a small stipend, according to the qualifications and financial needs of the applicants. These scholarships are intended primarily for citizens of the United States and in general preference will be given to applicants under 35 years of age. Besides these scholarships, the School has a few additional sources of support including several U. S. Public Health Service Traineeships. Since all our funds are limited, applicants should also investigate other sources of support.

Before an applicant can be considered for a scholarship or fellowship, he must be admitted to the School. Admission and scholarship application forms as well as information on the sources of support available at the School may be obtained from the Secretary of Admissions and Scholarships, Harvard School of Public Health, 55 Shattuck Street, Boston 15, Massachusetts. Completed applications

## SCHOOL OF PUBLIC HEALTH

for the year 1958-59, together with transcripts and letters of recommendation, should be returned to the Secretary before April 1, 1958. Awards will be announced during May 1958, but under exceptional circumstances awards may be made at other times.

In addition to the sources of support available at the Harvard School of Public Health, there are a few General University Scholarships and Fellowships which, under the terms of the original gift to the University, may be awarded to students in any part of the University, including the School of Public Health. Many of these are for persons from a particular city, state or country, for study of a particular field, or for those with other special qualifications. Applications for these scholarships must be submitted, through the School of Public Health, by February 1st of the year preceding the academic year for which the award is desired. A pamphlet describing these University Scholarships may be obtained from the Secretary of Admissions and Scholarships of the School of Public Health.

## STUDENTS, 1956-1957

### DEGREE CANDIDATES AND FULL-TIME SPECIAL STUDENTS

Alcerro-Castro, Ramon, B.A., M.D., M.P.H.	Tegucigalpa, Honduras
Baczewski, Zbigniew J., S.B., M.D.	Upper Darby, Pa.
Barrett, Austin J., A.B.	Haverhill, Mass.
Bartholomay, Anthony F., A.B., A.M.	Wellesley Hills, Mass.
Bartl, Franz, M.D.	Brookline, Mass.
Bhamornsathit, Suksa, M.D.	Dhonburi, Thailand
Bindman, Arthur J., A.B., A.M., PH.D.	Belmont, Mass.
Blackwell, Floyd O., S.B., S.M.	Grandview, Wash.
Borda, Alberto A., M.D.	Cucuta, Colombia
Brätt, Harry R., A.B., M.D.	San Diego, Calif.
Brown, Edwin W., Jr., M.D.	Falls Church, Va.
Brownell, Leona W., A.B., S.M.	Arlington, Mass.
Buendia, Augusto, M.D.	Bogota, Colombia
Bustamante, Werner, M.D.	Santiago, Chile
Casey, Catherine M., A.B., M.S.S.S.	Malden, Mass.
Chaiyaporn, Vichitr, M.D.	Bangkok, Thailand
Cheever, C. Lyle, S.B.	Shelby, Mich.
Chugh, Manohar L., M.B.,B.S., D.T.M., D.P.H., D.I.H., M.P.H., DR.P.H.	Amritsar, India
Cimadevilla, Margarita I., DR. IN PHARM.	Havana, Cuba
Conant, Lucy H., A.B., M.N.	Southampton, Mass.
Cullum, George W., S.B., M.D.	Johnston, S.C.
Daggy, Richard H., S.B., S.M., PH.D., M.P.H. (in absentia)	Dhahran, Saudi Arabia
Daley, Richard M., S.B.	Aurora, Colo.
Dawber, Thomas R., A.B., M.D.	Wellesley Hills, Mass.
Domke, Herbert R., S.B., M.D., M.P.H. (in absentia)	Kirkwood, Mo.
Doss, Mona H., B.A.	Cairo, Egypt
Eckel, Helen E., A.B.	Bergenfield, N. J.
El-Dakhakhny, Abdel-Aziz A., B.SC.	Alexandria, Egypt
El-Sherbini, Ahmed Fouad, M.B.,CH.B., D.C.H., M.D.	Alexandria, Egypt
Fagan, James H., A.B., M.D.	Lexington, Va.
Fernandez, Maria del Carmen, M.D.	Havana, Cuba
Forzano, A. Barone, D.M.V., M.D.	Rio de Janeiro, Brazil
Freitag, Julia L., A.B., M.D.	Hope Farm, N. Y.

## SCHOOL OF PUBLIC HEALTH

- |  |                               |
|--|-------------------------------|
| Freymann, Moye W., S.B., M.D., M.P.H.                  | Omaha, Nebr.                  |
| Gartner, Alfonso, M.D.                                 | Bogota, Colombia              |
| George, Molly O'Mara, A.B., D.D.S.                     | Casper, Wyo.                  |
| Gernert, Edward B., D.M.D.                             | Louisville, Ky.               |
| Gideon, Helen, M.B., B.S.                              | Khanna, Ludhiana, India       |
| Goldsmith, John R., A.B., M.D.                         | Millis, Mass.                 |
| Goltra, Evan R., Jr., A.B., M.D.                       | Hamden, Conn.                 |
| Gould, D. Gail H., A.B.                                | Cambridge, Mass.              |
| Haberer, John C., C.E.                                 | Utica, N. Y.                  |
| Haddon, William, Jr., S.B., M.D.                       | Boston, Mass.                 |
| Hampson, Kenneth W., M.D.                              | Winnipeg, Man., Canada        |
| Hanna, Azmi T., M.B., CH.B., D.P.H., M.P.H.            | Alexandria, Egypt             |
| Harney, Jean Lenore, L.M.S.S.A., M.R.C.S.,<br>L.R.C.P. | Basseterre, St. Kitts, B.W.I. |
| Hay, Hugh B., M.D.                                     | Ottawa, Ont., Canada          |
| Hoag, Warren G., D.V.M.                                | Blacksburg, Va.               |
| Holager, Erik, D.V.M.                                  | Hamar, Norway                 |
| Hoover, David B., S.B.F.                               | Baltimore, Md.                |
| Horton, Bennett F., A.B., M.D.                         | Americus, Ga.                 |
| Jackson, Howard W., ED.B.                              | Hopkinton, Mass.              |
| Jones, Helen M., S.B.                                  | Warsaw, N. Y.                 |
| Joseph, K. Peter, B.A., M.B., B.S., B.S.SC.            | Madras, India                 |
| Kane, Margaret G., A.B., S.B.                          | Cambridge, Mass.              |
| Kennedy, John E., S.B., M.D.                           | Bloomfield, Conn.             |
| Kesler, Joseph P., A.B., M.D.                          | Salt Lake City, Utah          |
| Kirschner, Seymour Leon, S.B., A.M.                    | Brooklyn, N. Y.               |
| Klerman, Lorraine V., A.B., M.P.H.                     | Watertown, Mass.              |
| Korhonen, Eeva Elina, M.SC.A.F.                        | Helsinki, Finland             |
| Kundsin, Ruth B., A.B., A.M.                           | Squantum, Mass.               |
| Langford, James G., S.B., M.D.                         | Pitman, N. J.                 |
| Lear, Christine D., S.B.                               | Princeton, N. J.              |
| Lin, Hsiang Ju, A.B.                                   | Cannes, France                |
| Lingaraju, Bangalore N., M.B., B.S., D.P.H.,<br>M.P.H. | Mysore, India                 |
| Lipe, Robert O., M.D.                                  | Charlotte, N. C.              |
| Ludwig, John H., B.S.C.E., M.S.C.E., S.M.<br>IN HYG.   | Bethesda, Md.                 |
| MacDonald, Ivy I., S.B.                                | Cambridge, Mass.              |
| Ma Hpay, M.B., B.S., D.T.M.&H., D.BACT.                | Rangoon, Burma                |
| Marciniszyn, Casmira A., S.B.                          | Philadelphia, Pa.             |
| Marston, Mary-Vesta, A.B., M.N.                        | Calais, Maine                 |
| Matute, Jose L., M.D.                                  | Panama City, Panama           |
| McNeely, Celia A., B.A., M.B.                          | Drain, Oregon                 |

# HARVARD UNIVERSITY

- Molloy, Mary E., S.B.  
 Moncada, Jaime, CHEM.E.  
 Moses, Satyadas H., M.B.,B.S., D.T.M.,  
     B.S.SC., M.P.H.  
 Mundel, George, M.B.,CH.B., M.R.C.P.  
 Murphy, Edna F., S.B. IN ED.  
 Nainggolan, S. Condar, M.D.  
 Osborne, Maurice M., Jr., M.D.  
 Papasarathorn, Tongchai, M.D., M.P.H.  
 Patrie, Lewis E., A.B., M.D.  
 Pedulla, Josephine L., S.B.  
 Pelloux, Isabel Stephens, B.SC.  
 Plaut, Thomas F. A., A.B., A.M., PH.D.  
 Polgar, Steven, A.M., PH.D.  
 Radhalaxmi, Kottieth K., B.SC., D.S.S.A.  
 Ramadwar, Dattatraya K., L.M.P.,  
     M.B.,B.S.  
 Read, Esther H., A.B., ED.M.  
 Realmuto, Antonino, M.D.  
 Rebentisch, Jean I., S.B., A.M.  
 Reddy, William J., A.B.  
 Reyes, Andrea C., D.D.M.  
 Reyes, Angel R. L., M.D.  
 Richards, Mary Jane, A.B.  
 Risquez-Iribarren, Rafael, M.D., M.P.H.  
 Roelsgaard, Erik, M.D.  
 Rogier, Jean F., A.B., M.D.  
 Rothney, William B., B.SC., M.D.,C.M.  
 Ryan, Arthur E., M.D.  
 Saylor, Louis F., S.B. IN MED., M.D.  
 Shamir, Zvi, M.D.  
 Sharma, Rameshwar, M.B.,B.S., M.D.  
 Short, Ruth P., PH.B., M.S.W.  
 Shurrab, Subhi M., M.D.  
 Sloan, Norman R., A.B., M.D.  
 Smart, Carlos R., B.A., M.D.  
 Sogandares, Lucila E., B.SC., S.M.  
     (in absentia)  
 Stocking, E. Barbara, S.B.  
 Sudsaneh, Saovanee, B.SC.PHARM., S.M.  
 Tai, Mary, B.SC., S.M.  
 Toyama, Toshio, M.D., DR.MED.SC.  
 Trishnananda, Mukda, M.D.
- Milton, Mass.  
 Bogota, Colombia  
 Madras, India  
 Kfar Shmareyahu "B", Israel  
 Fairfield, N. Y.  
 Djakarta, Indonesia  
 Cambridge, Mass.  
 Bangkok, Thailand  
 Castleton-on-the-Hudson, N. Y.  
 Rochester, N. Y.  
 Brussels, Ont., Canada  
 Cambridge, Mass.  
 Chicago, Ill.  
 Calcutta, India  
 Raipur, India  
 Rockport, Mass.  
 Rome, Italy  
 New York, N. Y.  
 Brighton, Mass.  
 Pasig, Rizal, Philippines  
 Manila, Philippines  
 Springfield, Mass.  
 Caracas, Venezuela  
 Copenhagen, Denmark  
 Mason City, Ill.  
 Toronto, Ont., Canada  
 Queens Village, N. Y.  
 Arlington, Va.  
 Jerusalem, Israel  
 Jaipur, Rajasthan, India  
 Los Angeles, Calif.  
 Kuwait, Kuwait  
 Honolulu, Hawaii  
 Colon, Panama  
 Panama City, Panama  
 Detroit, Mich.  
 Bangkok, Thailand  
 Chia-Yi, Formosa  
 Tokyo, Japan  
 Dhonburi, Thailand

## SCHOOL OF PUBLIC HEALTH

Troxell, John R., M.D.	Winchester, Va.
Turner, Thomas W., S.B., M.D.	Mouth of Wilson, Va.
Uram, Jerome A., S.B., S.M., S.M. IN HYG. (in absentia)	Arlington, Va.
Veatch, Charles A., S.B., M.D.	East Alton, Ill.
Vinson, John W., S.B.	New York, N. Y.
Webster, Thomas G., A.B., M.D.	Dedham, Mass.
Welty, Carl G., Jr., S.B., S.M.	Riverton, Wyo.
Wheaton, Jerrold L., A.B., M.D.	Utica, N. Y.
Whiting, Marjorie G., S.B., A.M., M.P.H.	Hanover, N. H.
Willis, Henry S. K., Jr., A.B., M.D.	Chapel Hill, N. C.
Yamamoto, Jiro, M.D.	Tokyo, Japan
Zomzely, Claire E., S.B., S.M. IN HYG.	Little Falls, N. J.

## PART-TIME STUDENTS

Armbruster, Robert H., B.S., M.D.	Ras Tanura, Saudi Arabia
Atsmon, Abraham, M.D.	Tel-Aviv, Israel
Bronzi, Elsie L., S.B.	South Glastonbury, Conn.
Byrne, Evelyn M., S.B.	Leominster, Mass.
Cubillos, Luis L., M.D.	Santiago, Chile
Curran, William J., LL.B., LL.M.	Waban, Mass.
Doane, Eleanor R., S.B.	Boston, Mass.
Elashoff, Robert M., S.B., A.M.	Newton Center, Mass.
Freymann, Katherine C., A.B., M.P.H.	Omaha, Nebr.
Groton, William M., M.D.	Westerly, R. I.
Guthrie, John, M.B., CH.B.	Ahmadi, Kuwait
Guthrie, Vivian M., B.A., M.B., CH.B.	Ahmadi, Kuwait
Jhirad, Judith M., B.A., D.S.S.A.	Bombay, India
Johnson, Gertrude C., S.B.	Boston, Mass.
Lindgren, Audrey M., S.B.	Framingham, Mass.
Meier, Hans, D.V.M.	Zurich, Switzerland
Parrino, Paul S., M.D., M.P.H.	Highland Park, N. J.
Shaw, Ethel C., B.Sc.	Vancouver, B. C., Canada
Van Zandt, Jere D., S.B.	Beaumont, Texas
Vela, Gerard R., A.B., A.M.	San Antonio, Texas

## HARVARD UNIVERSITY

### DEGREES

On June 14, 1956, the following degrees were conferred:

#### DOCTOR OF PUBLIC HEALTH

- Beryl Josephine Roberts, s.b. (*Boston Teacher's Coll.*) 1934, ED.M. (*ibid.*) 1935, M.P.H. (*Massachusetts Institute of Technology*) 1943  
Thesis: A Study of Some Factors Associated with Actions for Medical Care  
Special Field: Public Health Education
- Marjorie A. C. Young, s.b. (*Boston Teacher's Coll.*) 1933, ED.M. (*ibid.*) 1934, M.P.H. (*Yale Univ.*) 1947  
Thesis: An Analysis of Health Education Programs in Massachusetts Industries  
Special Field: Public Health Education

#### DOCTOR OF SCIENCE IN HYGIENE

- Calvin Walter Schwabe, s.b. (*Virginia Polytechnic Institute*) 1948, S.M. (*Univ. of Hawaii*) 1950, D.V.M. (*Alabama Polytechnic Institute*) 1954, M.P.H. (*Harvard Univ.*) 1955  
Thesis: Studies in the Physiology of *Nippostrongylus Muris* Larvae  
Special Field: Tropical Public Health

#### MASTER OF PUBLIC HEALTH, *Magna cum Laude*

- Ralph Leonard Doherty, M.B., B.S. (*Univ. of Queensland, Australia*) 1950

#### MASTER OF PUBLIC HEALTH, *cum Laude*

- Hugh Minard Averill, D.D.S. (*Univ. of Buffalo*) 1944  
Charles Alden Berry, A.B. (*Univ. of California*) 1945, M.D. (*ibid.*) 1947  
Katherine Terese Cantwell, A.B. (*Coll. of St. Rose*) 1951  
Moye Wicks Freymann, s.b. (*Yale Univ.*) 1945, M.D. (*Johns Hopkins Univ.*) 1948  
Mary Lee Mack Ingbar, s.b. (*Radcliffe Coll.*) 1946, A.M. (*ibid.*) 1948, PH.D. (*ibid.*) 1953  
Louis Fingal Johnson, s.b. (*Univ. of Massachusetts*) 1940, M.D. (*Harvard Univ.*) 1949  
David Critcherson Miller, M.D. (*Duke Univ.*) 1950  
Eugene Gale Miller, M.D. (*Univ. of Chicago*) 1949

## SCHOOL OF PUBLIC HEALTH

Alfred Walter Senft, A.B. (*Univ. of California*) 1948, M.D. (*Harvard Univ.*) 1952, D.T.M.&H. (*London School of Tropical Medicine and Hygiene*) 1953  
 Michael James Takos, S.B. (*Pennsylvania State Coll.*) 1940, S.M. (*Univ. of Maine*) 1942, M.D. (*Univ. of Michigan*) 1951

## MASTER OF PUBLIC HEALTH

Jamal Ahmed Hamdi Al-Azzawi, M.B.,CH.B. (*Royal Coll. of Medicine, Iraq*) 1950  
 Harry Allen, A.B. (*Univ. of Maine*) 1949, M.SC. (*Northeastern Univ.*) 1951, M.D. (*New York Medical Coll.*) 1956  
 Maria Banasiewicz-Rodriguez, M.D. (*Univ. of Pozan, Poland*) 1946  
 Robert Randolph Burwell, S.B. (*Univ. of Wyoming*) 1947, M.D. (*Creighton Univ.*) 1951  
 Marcelo Susara Canlas, M.D. (*Univ. of Santo Tomas, Philippines*) 1946  
 Kenneth Irwin Chapman, A.B. (*Univ. of Connecticut*) 1950, S.M. (*Indiana Univ.*) 1951  
 Dwight Owen Coons, M.D. (*Univ. of Toronto*) 1948  
 K. Barbara Dormin, S.B. IN ED. (*Syracuse Univ.*) 1940  
 Alina Margaret Drake, S.B. (*Univ. of Chicago*) 1934  
 Marguerite Charmian Dunham, S.B. (*Univ. of New Hampshire*) 1950, M.D. (*Univ. of Toronto*) 1954  
 Ethelberta Mary Earnshaw, B.A.SC. (*Univ. of British Columbia, Canada*) 1948  
 Ichiro Fukushima, M.D. (*Tokyo Univ.*) 1946  
 Edito Gutierrez Garcia, M.D. (*Univ. of the Philippines*) 1949  
 Azmi Tobia Hanna, M.B.,CH.B. (*Univ. of Alexandria*) 1949, D.P.H. (*Univ. of Cairo*) 1953  
 Herbert Arthur Hibben, M.D. (*Univ. of Tennessee*) 1948  
 Milton Taylor Hill, B.C.E. (*Clarkson Coll. of Technology*) 1931, M.C.E. (*Cornell Univ.*) 1937  
 Robert Harry Lang, A.B. (*Austin Coll.*) 1949, M.D. (*Univ. of Texas*) 1953  
 Irene Rose Mahar, S.B. (*Univ. of Buffalo*) 1950  
 Emily Frelinghuysen McFarland, A.B. (*Boston Univ.*) 1953  
 Desmond O'Hara, A.B. (*Tufts Coll.*) 1950  
 Boris Pliskin, M.D. (*Univ. of Wilno, Poland*) 1934  
 Dradjat D. Prawiranegara, M.D. (*Univ. of the Republic of Indonesia*) 1945  
 Claudio Luis Prieto, M.D. (*Univ. of Asuncion, Paraguay*) 1939  
 Venkatsubbarao Narayana Rao, M.B.,B.S. (*Stanley Medical Coll., India*) 1944, D.P.H. (*All India Inst. of Hygiene & Public Health*) 1946  
 Jack Hinton Robbins, M.D. (*Coll. of Medical Evangelists*) 1948  
 Evelyn Ruth Rosen, S.B. (*Boston Univ.*) 1952  
 John Alfred Scharffenberg, S.B. (*Washington Mission Coll.*) 1946, M.D. (*Coll. of Medical Evangelists*) 1948

## HARVARD UNIVERSITY

- Arnold David Schwartz, A.B. (*Univ. of California*) 1947, M.D. (*ibid.*) 1950  
Hugh Joseph Stennis, M.D. (*Univ. of Pennsylvania*) 1949  
Elizabeth Calder Stobo, S.B. (*Columbia Univ.*) 1941, A.M. (*ibid.*) 1954  
Donald Leo Toker, S.B. (*Univ. of Notre Dame*) 1946, M.D. (*Western Reserve Univ.*) 1950  
Konosuke Tomabechi, M.D. (*Kyoto Univ., Japan*) 1948, DR.MED.SC. (*ibid.*) 1955  
Milton Werrin, M.D.V. (*Univ. of Pennsylvania*) 1934  
Miguel Eduardo Yopez, M.D. (*Central Univ., Ecuador*) 1945

## MASTER OF INDUSTRIAL HEALTH

- Franz Norbert Metzner, M.D. (*Univ. of Goettingen, W. Germany*) 1954  
Ernest Earl Musgrave, M.D. (*Univ. of Puerto Rico*) 1954

## MASTER OF SCIENCE IN HYGIENE

### (in the field of Health Education)

- Ruth Thorndike Clough, A.B. (*Goucher Coll.*) 1925, A.M. (*Univ. of Maine*) 1930

### (in the field of Industrial Hygiene)

- Eugene Vincent Barry, S.B. (*Polytechnic Inst. of Brooklyn*) 1951  
Harry Matherson Donaldson, S.B.CHEM. (*Massachusetts Inst. of Technology*) 1936  
Lester Levin, A.B. (*Univ. of Pennsylvania*) 1950  
John Howard Ludwig, B.S.C.E. (*Univ. of California*) 1934, M.S.C.E. (*Univ. of Colorado*) 1941  
Thomas Kelita Wilkinson, A.B. (*American International Coll.*) 1950

### (in the field of Microbiology)

- Mohammad Fateh Khan, M.B.,B.S. (*Dow Medical Coll., Pakistan*) 1952  
Lucio Nuzzolo, M.D. (*Univ. of Rome*) 1949  
Charlotte Anne Smith, A.B. (*Vassar Coll.*) 1954

### (in the field of Nutrition)

- Ubolsri Palasiri, S.B.PHARM. (*Univ. of Medical Sciences, Thailand*) 1948, M.N.S. (*Cornell Univ.*) 1955  
Lucy June Shortridge, S.B. (*Univ. of California*) 1951  
Demetra Jeanne Silides, A.B. (*Hunter Coll.*) 1950  
Leonardo Sinisterra, M.D. (*Central Univ., Spain*) 1951  
Claire Eleanore Zomzely, S.B. (*Columbia Univ.*) 1950

## SCHOOL OF PUBLIC HEALTH

(in the field of Public Health Practice)

- Beatrice Sylvia Stone, A.B. (*Smith Coll.*) 1934, S.M. IN S.S. (*Boston Univ.*) 1943  
Jean Browne Sweeley, A.B. (*Univ. of California*) 1932, M.S.W. (*Univ. of Southern California*) 1950  
Camilo Vijil y Tardon, PH.B. (*Univ. of Paris*) 1930, M.D. (*Univ. of Lausanne*) 1939, M.D. (*Univ. of Chile*) 1940, M.P.H. (*Harvard Univ.*) 1955  
EDWARD WELLIN, A.B. (*Syracuse Univ.*) 1949, A.M. (*Harvard Univ.*) 1952, PH.D. (*ibid.*) 1955

On March 11, 1957, the following degrees were conferred:

### DOCTOR OF PUBLIC HEALTH

- Julius Samuel Prince, A.B. (*Yale Univ.*) 1932, M.D. (*Columbia Univ.*) 1938, M.P.H. (*ibid.*) 1948  
Thesis: Community Social Structure and Attitudes Towards Public Health  
Special Field: Public Health Practice

### DOCTOR OF SCIENCE IN HYGIENE

- Ornella Calabi, S.B. (*Univ. of Milan, Italy*) 1937, M.SC. (*The Hebrew Univ., Jerusalem*) 1945, S.M. (*Univ. of Chicago*) 1951  
Thesis: Quantitative Studies on the Crisis Phenomenon in Experimental Relapsing Fever (*Borrelia Novyi*)  
Special Field: Microbiology

### MASTER OF PUBLIC HEALTH

- Edna Mary Alter, A.B. (*Univ. of Michigan*) 1941, M.N. (*Yale Univ.*) 1950  
Hazel Midwood, S.B. (*Simmons Coll.*) 1953  
Frances Haddock Pitts, S.B. (*Univ. of Pittsburgh*) 1935, S.M.HYG. & PHYS.ED. (*Wellesley Coll.*) 1938

FALL TERM — FIRST PERIOD (SEPTEMBER 23 TO NOVEMBER 16, 1957)

<i>Course</i>	<i>Credit Units</i>	<i>Course</i>	<i>Credit Units</i>
<b>PUBLIC HEALTH</b>		<b>MICROBIOLOGY</b>	
1a The Human Community ***	2.5	1a, b Principles of Bacteriology and Immunology ***	1 (2)
		12a Biological Products in Public Health	1
<b>BIOSTATISTICS</b>		<b>PHYSIOLOGY</b>	
1a, b Principles of Biostatistics *	2 (4) †	1a, b Human Physiology and Its Applications to Public Health	1 (2)
<b>EPIDEMIOLOGY</b>		<b>PUBLIC HEALTH PRACTICE</b>	
3a Clinical Infectious Diseases	.5	1a, b Principles of Public Health Practice **	1 (3)
15a, b Advanced Epidemiology	1-2 (2-4)	2a, b Organization of Medical Care	1 (2)
		4a Control of Cancer and other Chronic Diseases	2
<b>INDUSTRIAL HYGIENE</b>		5a, b Community Health Education	1.5 (3)
2a, b Industrial Air Analysis	2 (4)	<b>SANITARY ENGINEERING</b>	
		1a Principles of Sanitation **	2.5
<b>MATERNAL AND CHILD HEALTH</b>		<b>TROPICAL PUBLIC HEALTH</b>	
1a, b Growth and Development through Preschool Years	2 (4)	1a, b Ecology and Prevention of Tropical Diseases ***	1.5 (3.5)

Unscheduled courses: Environmental Hygiene 1a, b; Industrial Hygiene 3a, b; 4a, b; 11a, b; Microbiology 15a, b; Nutrition 1a; Public Health Practice 45a, b; Sanitary Bacteriology 2a, b. (See Department for description)

\* Required of all degree candidates

\*\* Required of all M.P.H. candidates

\*\*\* Semi-elective courses for M.P.H. candidates

† Figures in parentheses are units for entire course, if this runs longer than one period

# Fall Term -- First Period      September 23 to November 16, 1957

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9	BIostatISTICS 1a,b*	MICROBIOLOGY 1a,b***	PUBLIC HEALTH PRACTICE 1a,b**	MICROBIOLOGY 1a,b***	PUBLIC HEALTH PRACTICE 1a,b**	
10			BIostatISTICS 1a,b*	SANITARY ENGINEERING 1a**	PUBLIC HEALTH 1a (HUMAN COMMUNITY)***	SANITARY ENGINEERING 1a ** (OCT. 5, 19, NOV. 2, 16)
11	PUBLIC HEALTH 1a (HUMAN COMMUNITY) ***	SANITARY ENGINEERING 1a **	P.H. PRACTICE 5a,b	PUBLIC HEALTH 1a (HUMAN COMMUNITY) ***	TROPICAL PUBLIC HEALTH 1a,b ***	*REQUIRED OF ALL DEGREE CANDIDATES **REQUIRED OF ALL M.P.H. CANDIDATES ***SEMI-ELECTIVE COURSES FOR MPH CANDIDATES
12		TROPICAL P.H. 1a,b ***	P.H. PRACTICE 2a,b	PHYSIOLOGY 1a,b		
1		PHYSIOLOGY 1a,b				
2						
3	BIostatISTICS 1a,b* (LAB.)	MICRO. P.H. & MAT. RO. PRAC. CHILD IND. 12a 4a 1ab 2ab	BIostat. 1a,b (LAB) * MONDAY OR WEDNESDAY	P.H. PRAC. 4a	IND. HYG. 2a,b	TROPICAL PUBLIC HEALTH 1a,b (LAB.) ***
4	MONDAY OR WEDNESDAY					
5						

FALL TERM — SECOND PERIOD (NOVEMBER 18, 1957 TO JANUARY 25, 1958)

<i>Course</i>	<i>Credit Units</i>	<i>Course</i>	<i>Credit Units</i>
ENVIRONMENTAL HYGIENE 1b ***	2.5	MICROBIOLOGY 1a, b Principles of Bacteriology and Immunology ***	1(2)
BIOSTATISTICS 1a, b Principles of Biostatistics *	2(4) †	11b Public Health Laboratory Procedures	2
EPIDEMIOLOGY 1b Principles of Epidemiology *	2.5	NUTRITION 2b, c Biochemistry and Physiology of Nutrition	2(4.5)
3b Clinical Infectious Diseases	.5	PHYSIOLOGY 1a, b Human Physiology and Its Application to Public Health	1(2)
15a, b Advanced Epidemiology	1-2(2-4)	PUBLIC HEALTH PRACTICE 1a, b Principles of Public Health Practice **	2(3)
INDUSTRIAL HYGIENE 2a, b Industrial Air Analysis	2(4)	2a, b Organization of Medical Care	1(2)
MATERNAL AND CHILD HEALTH 1a, b Growth and Development through Preschool Years	2(4)	3b Psychosocial Problems	1
		5a, b Community Health Education	1.5(3)
		TROPICAL PUBLIC HEALTH 1a, b Ecology and Prevention of Tropical Diseases ***	2(3.5)

Unscheduled courses: Environmental Hygiene 2a,b; Industrial Hygiene 3a,b; 4a,b; 11a,b; Microbiology 15a,b; Nutrition 1b; Public Health Practice 45a,b; Sanitary Bacteriology 2a,b. (See Department for description)

\* Required of all degree candidates

\*\* Required of all M.P.H. candidates

\*\*\* Semi-elective courses for M.P.H. candidates

† Figures in parentheses are units for entire course, if this runs longer than one period

Fall Term -- Second Period

November 18, 1957, to January 25, 1958

*Monday*

*Tuesday*

*Wednesday*

*Thursday*

*Friday*

*Saturday*

9	PUBLIC HEALTH PRACTICE 1a,b**
10	BIOSTATISTICS 1a,b*
11	EPIDEMIOLOGY 1b*
12	
1	

MICROBIOLOGY 1a,b***
ENVIRONMENTAL HYGIENE 1b***
P.H. PRACTICE 5a,b
P.H. PRACTICE 2a,b
PHYSIOLOGY 1a,b

PUBLIC HEALTH PRACTICE 1a,b**
BIOSTATISTICS 1a,b*
EPIDEMIOLOGY 1b*

MICROBIOLOGY 1a,b***
ENVIRONMENTAL HYGIENE 1b***
TROPICAL PUBLIC HEALTH 1a,b***
PHYSIOLOGY 1a,b

PUBLIC HEALTH PRACTICE 1a,b**
TROPICAL PUBLIC HEALTH 1a,b***
EPIDEMIOLOGY 1b*

ENVIRONMENTAL  
HYGIENE 1b\*\*\*

\* REQUIRED OF ALL  
DEGREE CANDIDATES  
\*\* REQUIRED OF ALL  
M.P.H. CANDIDATES  
\*\*\* SEMI-ELECTIVE  
COURSES FOR M.P.H.  
CANDIDATES

2	
3	BIOSTATISTICS 1a,b* (LAB)
4	MONDAY OR WEDNESDAY
5	

MAT. NUT. & CHILD HLTH. 1a,b
MIC-IND. R.O. HYG. 11b 2a,b

BIO. 1a,b- (LAB.) MON. OR WED.
P.H. PRACTICE 3b
MICRO. 11b
EPID. 15a,b

MAT. NUT. & CHILD HLTH. 1a,b
MIC-IND. R.O. HYG. 11b 2a,b

TROPICAL PUBLIC HEALTH 1a,b (LAB.) ***
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SPRING TERM — THIRD PERIOD (FEBRUARY 3 TO MARCH 29, 1958)

<i>Course</i>	<i>Credit Units</i>	<i>Course</i>	<i>Credit Units</i>
<b>PUBLIC HEALTH</b>		<b>MICROBIOLOGY</b>	
3c History and Philosophy of Public Health	1	2c, d Current Research	.5(1)
40c,d Research Methods in Community Health	2(4) †	13c Rickettsial and Viral Diseases	3
<b>BIostatISTICS</b>		<b>NUTRITION</b>	
2c,d Epidemiological Methods	2(3)	2b, c Biochemistry and Physiology of Nutrition	2.5(4.5)
3c,d Laboratory Research Methods	2(3)	3c, d Laboratory Techniques	1(2)
<b>EPIDEMIOLOGY.</b>		4c Public Health Nutrition***	1.5
2c Clinical Epidemiology	1.5	<b>PHYSIOLOGY</b>	
3c Clinical Infectious Diseases	.5	2c Environmental Physiology	1
5c Practice of Epidemiology	3	<b>PUBLIC HEALTH PRACTICE</b>	
15c, d Advanced Epidemiology	2-3(4-6)	9c, d Mental Health Problems	1(2)
<b>INDUSTRIAL HYGIENE</b>		10c, d Public Health Administration, Health Education, Public Health Nursing and Social Work	3(6)
1c Basic Problems	3	11c, d Administration of Medical-Care Programs	2(4.5)
2c, d Industrial Air Analysis	2(4)	31c, d Field Study in Administration	(1.5)
5c Human Problems of Adjustment in Industry	1.5	43c Rehabilitation	1
6c Industrial Medicine	3		
<b>MATERNAL AND CHILD HEALTH</b>			
2c,d Growth and Development During School Years	3(6)		
3c Social Problems and Available Social Services for Children	1		
4c,d Problems of Administration and Organization***	1(2)		
5c,d Research Approach to Growth, Development and Health of the Child***	1(2)		

Unscheduled courses: Biostat. 5c,d; Ind. Hyg. 3c,d; 4c,d; 40c,d; Microb. 15c,d; Nutrition 7c; P.H.P. 5c,d; 6c,d; 7c,d; 8c,d; 40c,d; 41c,d; 42c; 44c,d; 45c,d; San. Eng. 3c,d; T.P.H. 5c,d. (See Department for description)

\*\*\* Semi-elective courses for M.P.H. candidates.

† Figures in parentheses are units for entire course, if this runs longer than one period.

Spring Term -- Third Period

February 3 to March 29, 1958

*Monday*

*Tuesday*

*Wednesday*

*Thursday*

*Friday*

*Saturday*

9

MAT. & CHILD HLTH. 2 c,d	P.H. PRACT. 11 c,d	IND. HYG. 6 c
NUTRITION 4 c ***		
EPID. 2 c	IND. HYG. 5 c	

EPID. 5 c	P.H. PRACT. 43 c	
PHYS. 2 c	M.C.H. 4 c,d ***	M.C.H. 5 c,d ***

M.C.H. 2 c,d	P.H. PRACT. 11 c,d	IND. HYG. 6 c
NUTRITION 4 c ***		
EPID. 2 c	IND. HYG. 5 c	P.H. 40 c,d

EPID. 5 c	M.C.H. 3 c	NUT. 3 c,d
PHYS. 2 c	MICRO. 2 c,d	

M.C.H. 2 c,d	IND. HYG. 6 c	
NUTRITION 4 c ***		
IND. HYG. 5 c	P.H. 40 c,d	

EPID. 5 c		
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\*\*\*SEMI-ELECTIVE COURSES FOR M.P.H. CANDIDATES

2

P.H. PRACT. 10 c,d	IND. HYG. 1 c	NUT. 2 b,c
MICRO. 13 c		

IND. HYG. 2 c,d	BIO. 2-3 c,d	P.H. 3 c
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P.H. PRACT. 10 c,d	MICRO. 13 c	IND. HYG. 1 c
FIELD TRIP		
EPID. 15 c,d		

IND. HYG. 2 c,d	BIO. 2-3 c,d	P.H. 31 c,d
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P.H. PRACT. 10 c,d	IND. HYG. 1 c	NUT. 2 b,c
EPID. 2 c (CLINIC)		

5

5:30

SPRING TERM — FOURTH PERIOD (APRIL 7 TO MAY 31, 1958)

<i>Course</i>	<i>Credit Units</i>	<i>Course</i>	<i>Credit Units</i>
<b>PUBLIC HEALTH</b>		<b>MICROBIOLOGY</b>	
40c, d Research Methods in Community Health	2(4) †	2c, d Current Research	.5(1)
<b>BIOSTATISTICS</b>		<b>NUTRITION</b>	
2c, d Epidemiological Methods	1(3)	3c, d The Laboratory Basis of Nutrition	1(2)
3c, d Laboratory Research Methods	1(3)	5d Dietary Evaluation	1
<b>EPIDEMIOLOGY</b>		6d Human Nutritional Disease ***	1.5
3d Clinical Infectious Diseases	.5	<b>PUBLIC HEALTH PRACTICE</b>	
6d Non-Infective Mass Disease and Injury	2	9c, d Mental Health Problems	1(2)
7d Quantitative Method in Epidemiology	1	10c, d Public Health Administration, Health Education, Public Health Nursing and Social Work	3(6)
8d Military Preventive Medicine	1	11c, d Administration of Medical-Care Programs	2.5(4.5)
15c, d Advanced Epidemiology	2-3(4-6)	31c, d Field Study in Administration	(1.5)
<b>INDUSTRIAL HYGIENE</b>		<b>TROPICAL PUBLIC HEALTH</b>	
2c, d Industrial Air Analysis	2(4)	2d Problems and Programs in Tropical Health	1
7d Industrial Hygiene Engineering	3		
8d Hygienic Aspects of Ventilation	1.5		
9d Human Factors in Occupational Safety	1		
10d Special Environmental Problems	1		
<b>MATERNAL AND CHILD HEALTH</b>			
2c, d Growth and Development During School Years	3(6)		
4c, d Problems of Administration and Organization ***	1(2)		
5c, d Research Approach to Growth, Development and Health of the Child ***	1(2)		
6d Recent Advances in Obstetrical Care	1		

Unscheduled courses: Biostat. 5c,d; Ind. Hyg. 3c,d; 4c,d; 40c,d; Microb. 15c,d; Nutrition 7d; Physiology 40d; P.H.P. 5c,d; 6c,d;

7c,d; 8c,d; 40c,d; 41c,d; 44c,d; 45c,d; San. Eng. 3c,d; T.P.H. 5c,d; 40d. (See Department for description)

\*\*\* Semi-elective courses for M.P.H. candidates.

† Figures in parentheses are units for entire course, if this runs longer than one period.

Spring Term -- Fourth Period

April 7 to May 31, 1958

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

8:30

9

MATERNAL  
& CHILD H.  
2 c,d

P. H.  
PRAC.  
11 c,d

IND.  
HYG.  
8d

EPID.  
6d

NUT.  
5d

M.C.H.  
4 c,d  
\*\*\*

M.C.H.  
5 c,d  
\*\*\*

TROP.  
P.H. 2d

M.C.H.  
2 c,d

P. H.  
PRACT.  
11 c,d

EPID.  
6d

NUT.  
3 c,d

IND.  
HYG.  
9d

MICRO.  
2 c,d

NUTRITION 6d  
\*\*\*

M.C.H. EPID.  
2 c,d 8d

IND.  
HYG.  
10d

1

NUT.  
6d  
\*\*\*

M.C.H.  
4 c,d  
\*\*\*

M.C.H.  
5 c,d  
\*\*\*

TROP.  
P.H. 2d

M.C.H.  
2 c,d

P. H.  
PRACT.  
11 c,d

EPID.  
6d

NUT.  
3 c,d

IND.  
HYG.  
9d

MICRO.  
2 c,d

NUTRITION 6d  
\*\*\*

M.C.H. EPID.  
2 c,d 8d

IND.  
HYG.  
10d

PUBLIC  
HEALTH  
40 c,d

P. H.  
PRACT.  
10 c,d

IND.  
HYG.  
7d

P. H.  
PRACT.  
9 c,d

IND.  
HYG.  
2 c,d

BIO.  
2 c,d

P. H.  
PRACT.  
10 c,d

IND.  
HYG.  
7d

IND.  
HYG.  
2 c,d

BIO.  
3 c,d

P. H.  
PRACT.  
31 c,d

P. H.  
PRACT.  
10 c,d

IND.  
HYG.  
7d

5

M. C. H.  
6d

5:30

EPIDEMIOLOGY  
7d

\*\*\*SEMI-ELECTIVE  
COURSES FOR M.P.H.  
CANDIDATES





## KEY TO AERIAL VIEW

- I School of Public Health, 55 Shattuck Street  
Administration, Departments of Biostatistics, Industrial  
Hygiene, Maternal and Child Health, Physiology and  
Public Health Practice
- A Administration Building, Medical School  
Second Floor, Library
- B, C, D, E Laboratories and Classrooms, Medical School  
Building E2, Room 238, Department of Tropical Public  
Health
- F Vanderbilt Hall
- II Peter Bent Brigham Hospital
- III and V Children's Hospital
- IV Boston Lying-in Hospital
- VI School of Public Health, Huntington Building, 1 Shattuck  
Street, Departments of Epidemiology, Nutrition and  
Microbiology





# CALENDAR FOR THE ACADEMIC YEAR 1957-58

*September 16, Monday*  
*to September 20, Friday*

Registration of students

FALL TERM, SEPTEMBER 23, 1957 to FEBRUARY 1, 1958

*September 23, Monday*

First Period begins

*October 12, Saturday*

Columbus Day: a holiday

*November 11 Monday*

Veterans' Day: a holiday

*November 16, Saturday*

First Period ends

*November 18, Monday*

Second Period begins

*November 28, Thursday*

Thanksgiving Day: a holiday

RECESS FROM SUNDAY, DECEMBER 22, 1957 TO  
SUNDAY, JANUARY 5, 1958, INCLUSIVE

*January 25, Saturday*

Second Period classes end

*January 27, Monday*

Field Work

*to February 1, Saturday*

SPRING TERM, FEBRUARY 3, 1958 TO JUNE 12, 1958

*January 30, Thursday*

Registration of new students

*February 3, Monday*

Third period classes begin

*February 22, Saturday*

Washington's Birthday: a holiday

*March 29, Saturday*

Third period ends

RECESS FROM SUNDAY, MARCH 30, 1958 TO  
SUNDAY, APRIL 6, 1958, INCLUSIVE

*March 31, Monday*

Field Work

*to April 5, Saturday*

*April 7, Monday*

Fourth Period begins

*April 19, Saturday*

Patriot's Day: a holiday

*May 30, Friday*

Memorial Day: a holiday

*May 31, Saturday*

Fourth Period classes end

*June 2, Monday*

Comprehensive Examination

*June 12, Thursday*

Commencement

